DOCUMENT RESUME

ED 330 424 PS 018 976

AUTHOR Colclough, Christopher; Lewin, Keith
TITLE Educating All the Children: The Economic Challenge for the 1990s.
SPONS AGENCY United Nations Children's Fund, New York, N.Y.
PUB DATE 89
NOTE 182p.; Contains faint type and reduced-size statistical tables.
PUB TYPE Guides - Non-Classroom Use (055)

EDRS PRICE MF01 Plus Postage. PC Not Available from EDRS.
DESCRIPTORS *Cost Estimates; *Developing Nations; *Educational Development; Educational Finance; Educational Improvement; *Educational Policy; Educational Trends; Elementary Secondary Education; Global Approach

ABSTRACT

One tragic consequence of recession, debt, and adjustment has been that many countries are now further from the goal of providing a primary school place for each eligible child than they were a decade or more ago. This paper demonstrates the ways in which this trend can be reversed and identifies the conditions necessary for achieving primary schooling for all children by the end of the century. The main policy instruments available to expand access in the context of fiscal restraint are assessed. Lessons of promising reforms are drawn from country case studies and the wider research literature. It is estimated that the total additional recurrent costs of achieving schooling for all by the year 2000 would, in the absence of policy reforms, amount to 58 billion dollars. The greater part of these costs could be accommodated by developing countries provided three conditions were met. First, governments would need to introduce policies to reduce costs and mobilize additional resources to finance expansion. Second, some restructuring of expenditures--in particular from military budgets toward education--would be required. Third, a return to economic growth in Africa would need to take place. If the above conditions were met, the financing gap that remained could be closed by transfers of between 1 and 1.3 billion dollars per year from 1990 to 2000. Forty-one references are included. (RH)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

U.S. DEPARTMENT OF EDUCATION
Office of Educational Research and Improvement
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)

X This document has been reproduced as received from the person or organization originating it.

☐ Minor changes have been made to improve reproduction quality.

• Points of view or opinions stated in this document do not necessarily represent official OERI position or policy.

PS

ED330424

EDUCATING ALL THE CHILDREN: THE ECONOMIC CHALLENGE FOR THE 1990S

Christopher Colclough and Keith Lewin

"PERMISSION TO REPRODUCE THIS MATERIAL IN MICROFICHE ONLY HAS BEEN GRANTED BY

F. Zanuttini

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."

PS 0189776

EDUCATING ALL THE CHILDREN:

THE ECONOMIC CHALLENGE FOR THE 1990s

Christopher Colclough and Keith Lewin*

* The authors are, respectively, Fellow, Institute of Development Studies, and Reader in Education, University of Sussex. They wish to acknowledge the assistance of Robin Horn, Terri Demsky and Carolyn Winter in the production of case-study material; and staff of the Operational Policy and Sector Analysis Division and the Unit for Cooperation with UNICEF and WHO of UNESCO, who provided data and modelling support. Financial support for the research upon which this paper is based has been provided by UNICEF.

Abstract

One tragic consequence of recession, debt and adjustment has been that many countries are now further from the goal of providing a primary school place for each eligible child than they were a decade or more ago. This paper demonstrates how this trend can be reversed, and identifies the conditions necessary for achieving primary schooling for all children (SFA) by the end of the century. The main policy instruments available to expand access in the context of fiscal restraint are assessed, drawing lessons from country case studies of promising reforms, and from the wider research literature.

We estimate that the total additional recurrent costs of achieving SFA by the year 2000 would, in the absence of policy reforms, amount to some $58 billions. The greater part of these costs can be accommodated by developing countries provided three conditions are met. First, governments would need to introduce policies to reduce costs and to mobilise additional resources to finance expansion. Most of the additional resources so generated will be needed to protect or improve school quality. Nevertheless a feasible package of reforms would reduce the additional costs of SFA from $58 billions to around $43 billions. Second, some restructuring of expenditures - in particular from military budgets towards education - would be required. Third, a return to economic growth in Africa is presupposed: in its absence, domestic resources for SFA would remain far out of reach for the most educationally disadvantaged countries.

If the above conditions were met, a financing gap would still remain. Its closure would require transfers of between $1 billion and $1.3 billion per year over 1990-2000, in addition to current aid flows to education. These should take a number of different forms, including relief for debt service in highly indebted countries attempting to reach SFA. Up to 70 per cent of this support would be needed in Sub-Saharan Africa, where aid to education would be increased by up to two-thirds beyond present levels. These requirements are substantial. But they represent an economic challenge which can be met and, in human terms, they provide one of the most critically important targets for the next decade.

Table of Contents

	Page
The International Context	2
Dimensions of the Challenge	3
Policy Responses	6
Reduction in the Unit Costs of Education	6
Restructuring Education Systems	16
Redistribution of Expenditures	30
Raising Additional Financial Resources	40
Estimating the Cost-Impact of Educational Reforms	48
The Costs and Financing of Schooling For All	52
What will it cost?	53
How can these costs be financed?	58
Levels of international support required	59
Conclusion	64
Technical Appendix	66
Figures 1-19	71
References	84
Appendix	

1. The International Context

The 1980s have been characterised by profoundly different rates of economic progress amongst the nations of the world. For the industrialised countries, the sharp recession at the outset of the decade gave way to seven years of uninterrupted growth. The industrialising countries of East Asia continued to grow rapidly, and South Asian countries maintained modest but steady growth in per capita incomes, throughout the decade. But elsewhere it has been a very different story. In Africa and in Latin America hundreds of millions of people have experienced pronounced falls in their incomes and in the services available to them. In many countries in these regions, per capita incomes in 1990 are less than they were 10 or 15 years ago.

This sharply different record, which has led - at least outside Asia - to a substantial widening of the gulf that separates the rich and poor people of the world, is also reflected in the changing pattern of access to education. Government spending has been tightly controlled in response to increases in debt service payments, declines in concessional finance, and the fiscal conditions imposed upon borrowing countries by their international creditors. Expenditure restraint has hit the provision of schooling particularly hard: in more than half of the 76 developing countries for which data are available, spending upon education fell as a proportion of total public spending over the 1980s; in almost two-thirds, expenditures per student and per teacher at primary level fell; in one-fifth of developing countries total enrolments in primary school have fallen since 1980, and new entrants to Grade 1 have declined in a similar proportion of cases.[1] These trends must be viewed with extreme concern for a group of countries which include three-quarters of the world's population, where the median rate of population growth is in excess of 2 per cent per annum, and where a similar rate of

---

1. These generalisations cover the period from 1980 to the latest year for which information is available, and are based upon UNESCO unpublished statistics.

educational expansion would be required simply to prevent a deterioration in relative provision.

Set against this bleak international context, this paper addresses the challenge of providing primary schooling for all children (SFA) by the year 2000. The criteria used to define the achievement of SFA have two major dimensions. First, the provision of a primary school place for each eligible child is required. Second, and equally important, the quality of educational provision must be such as to facilitate effective learning. In many cases the quantitative criterion is close to being met, yet there is still far to go in achieving adequately supported and resourced primary schooling. As will be shown, the group of countries for which the relative dimensions of this task are greatest mainly comprises the poorest and/or most indebted nations of the world.

The paper examines each of the main policy instruments which can be used to expand access in the context of fiscal restraint, drawing lessons from country case studies of promising reforms, and from the wider research literature. A set of policies which could lead to substantial savings being made are identified. However, the need to protect or improve the <u>quality</u> of schooling - via teacher up-grading and materials support - could, and probably should, absorb a large part of these resources in many countries, as the move to SFA proceeds.

The total additional costs of achieving schooling for all by the end of the century are estimated. The extent to which these costs can be met by developing countries themselves - with and without changes to present policies - are examined. In a good number of countries, particularly in Africa, financing gaps would remain. Taken together, these indicate the levels of international support which will need to be mobilised over the next decade, to enable all children to go to school.

2. Dimensions of the Challenge

The ability to provide SFA is proxied by the size of a country's gross primary enrolment ratio (GER), since, where this has reached

Table 1 Countries with Gross Primary Enrolment Ratios of less than 90 per cent in 1985: Income, Debt and Expenditure Characteristics

	First Level Gross Enrolment Ratio (%)		Low Income Countries	Debt Service Ratio	Public Expenditure in Education as % of Total Public Spending		Annual Rate of Change in: Recurrent Expenditure per	Recurrent Expenditure per
	1980	1985	(L) (d)	1987	1985 (e)	Rising or Falling (f)	Teacher 1980-84/85	Student 1980-84/85
Sub-Saharan Africa								
Burkina Faso	21	32	L	10.3	22	R	-4.1	-5.2
Mali	25	23[b]	L	9.9	10	F	"	-3.9
Niger	27	28	L	46.9	"	"	"	"
Burundi	29	53	L	38.5	17	F	-3.9	-12.1
Guinea	31	30	L	"	17	"	"	"
Mauritania	34	37[a]	L	18.2	33	R	1.6	-3.1
Somalia	34	20	L	8.3	"	"	"	"
Ethiopia	35	36	L	28.4	12	F	0.5	3.3
Senegal	46	55		22.3	23	"	-16.2	-10.4
Sudan	50	50	L	15.6	15	R	-3.0	-3.8
Uganda	50	58[a]	L	19.5	13	F	-19.2	17.0
Gambia	52	75	L	"	6	"	-2.5	-3.5
Sierra Leone	54	58[a]	L	5.7	15	R	"	"
Malawi	61	62[c]	L	23.3	10	R	-1.7	0.0
Rwanda	63	64	L	11.3	28	R	-1.9	4.8
Benin	64	65	L	15.9	36	"	"	-5.24
Guinea Bissau	67	60[c]	L	"	11	"	"	"
Central African Republic	71	73	L	12.1	27	R	-4.4	-10.3
Ghana	73	63	L	20.3	16	F	-3.3	1.4
Ivory Coast	77	78		40.8	"	"	-14.1	-8.3
Tanzania	93	72	L	19.2	14	F	-4.6	-0.4
Mozambique	99	83	L	"	"	"	"	"
North Africa and Middle East								
Yemen Arab Republic	46	68		55.8	16	R	"	-1.8
Democratic Rep of Yemen	65	64	L	38.2	"	"	"	"
Egypt	78	85		21.5	11	R	"	"
Morocco	78	81		30.8	27	F	-3.2	0.3
Asia and the Pacific								
Bhutan	15	25	L	"	"	"	"	"
Afghanistan	34	18	L	"	7	F	28.9	32.6
Pakistan	39	47	L	26.3	5	-	4.4	-9.8
Papua New Guinea	59	60[a]		37.4	18	R	"	"
Bangladesh	62	60	L	24.2	16	R	14.1	17.3
Nepal	65	79	L	9.7	11	F	0.2	2.7
Latin America and Caribbean								
Haiti	67	78[c]	L	5.8	17	F	-12.0	-12.9
Guatemala	71	76[c]		25.8	23	R	"	"
El Salvador	74	70[c]		21.0	26	F	12.9	7.9

Notes: (a) Data are for 1982; (b) Data are for 1983; (c) Data are for 1984; (d) Countries with per capita GNP of less than $US 500 in 1987; (e) 1985, or latest year available;
(f) R = rising over previous four or five years; F = falling over previous four or five years; " data not available; - no change.

Sources: Enrolment and Expenditure data provided by UNESCO.
Columns 3 and 4: World Bank 1989.

BEST COPY AVAILABLE

countries shown in the Table are from that region, all except two of them being classified as low-income, and they include more than half of its population.

The Table also allows investigation of some simple dynamic characteristics of education systems in the countries shown. It is startling to notice that in 12 (one-third) of the countries the gross enrolment ratio actually declined between 1980 and 1985, which almost certainly implies that access to schooling has deteriorated over the past decade.[4] The gross enrolment ratio can decline as a result of elimination of over-age enrolment, but this is less likely to be the explanation in countries which are far from providing universal access to schooling. Ten of these twelve countries with declining enrolment ratios were low-income economies, and eight were in SSA.

The proportion of the government budget spent on education appears to be, on average, 17 per cent - considerably higher than the 10.4 per cent reported for all low and middle income economies for 1987 (World Bank 1989: Table 11). Thus, the reason for low enrolments at primary level in these countries is not that inadequate relative priority has been attached to spending on education (although spending priorities within education may be part of the problem). It is worth noting, furthermore, that in almost half the countries where data are available, the proportion of total public spending allocated to education had fallen over the previous five years. Not unexpectedly this feature seems to have been associated with cases where gross enrolment ratios had also fallen over the same period: reductions in the proportion of spending allocated to education had occurred in five out of seven countries where enrolment ratios fell, and where the data on both of these variables are available (see Table 1).

In about two-thirds of the countries shown in the Table, expenditures per teacher and per pupil declined over the early 1980s. These trends are not unambiguous, since they could

4. The list comprises: Mali, Guinea, Guinea Bissau, Ghana, Tanzania, Mozambique, Somalia, Sudan, Yemen D.R., Afghanistan, Bangladesh and El Salvador.

indicate either declines in the quality of schooling available (arising from smaller resource inputs) or improvements in efficiency (or both). In the case of the countries shown, however, the former outcome is the most likely - reflecting the increased economic stringency which governments and school systems were, in the early 1980s, having to face.

Taking account of both the changes in enrolment ratios and in per capita resource availability, none of the countries shown in the table seems likely, on present trends, to be able to provide a reasonable quality of schooling for all by the century's end. A critically important question, therefore, is whether and to what extent these circumstances can be influenced by practicable changes to domestic policy within the countries concerned. What, then, are the policy alternatives which such countries face?

3. Policy Responses

3.1 Reduction in the unit costs of education

As indicated in the previous section, although the proportion of public expenditure devoted to education varies widely amongst countries, the governments in those which are at present most educationally disadvantaged spend, on average, proportionately more on education than the others. Although there are important exceptions - particularly in the small number of countries where education claims only around 10 per cent, or less, of public expenditure - <u>in general</u>, the countries shown in Table 1 are already spending as much as can be afforded from public revenues, even though enrolment ratios at primary level remain low.

Table 2 indicates the extent to which unit cost levels vary at different levels of education and in different parts of the world. The enormously high costs of providing secondary and tertiary education relative to primary - particularly in Africa - are plain. These cost differentials imply that, in Africa, one fifth of public educational spending provides higher education for only 2 per cent of the age-group. More generally, primary schooling captures less than half of all educational expenditures even

Table 2

Public expenditure per student on education and enrolment ratios, major world regions, around 1980

Region	Public expenditure per student as percentage of per capita GNP			Enrolment ratio (per cent)			Number of countries reporting
	Primary	Secondary	Higher	Primary	Secondary	Higher	
Anglophone Africa	18	50	920	77	17	1.2	16
Francophone Africa	29	143	804	46	14	2.4	18
South Asia	8	18	119	71	19	4.4	4
East Asia and Pacific	11	20	118	87	43	9.1	6
Latin America	9	26	88	90	44	12.0	19
Middle East and North Africa	2	28	150	82	36	9.4	11
Developing countries	14	41	370	75	23	6.9	74
Developed countries	22	24	49	100	80	21.0	20

Source: World Bank 1986a, Table 9.

though it is the only part of the system - particularly in low income states - which most people have a chance of joining.

A critical question, therefore, concerns whether these levels of unit-costs can be reduced, thereby to facilitate a faster expansion of primary schooling in the context of given financial and human resources. It is well known that the two items which dominate the determination of the unit costs of education are the earnings of teachers and the size of the teacher-pupil ratio. Since, at the school-level, salary costs typically account for around 90 per cent of recurrent expenditures, most discussions of unit costs in education begin with some discussion of teachers' salaries.

The average earnings of teachers

Salary Levels It has frequently been stated in the literature that levels of teachers' salaries in developing countries are too high, and must be reduced as part of a strategy to reduce unit educational costs. It is true that in the first 10 or 15 years of independence teachers' earnings increased considerably faster than those of other groups. This was partly a result of the power of the (large and rapidly growing) profession in many countries. But it was, rather more so, a result of an up-grading of the qualifications of the profession - to which levels of remuneration were often explicitly linked - and of a much faster expansion of secondary and tertiary education, wherein the most highly paid teachers were concentrated, than of primary schooling. The budgetary implications of these structural changes are regrettable, but they do not, per se provide a convincing case for salary reductions.

A number of commentators point out that the ratio of average teachers' salaries to per capita income is often very high in the poorest countries.[5] This too, is a misleading indicator: it is

5. For example, the recent World Bank report on Education in Sub-Saharan Africa observes that, for primary teachers around 1980, the ratio of average salaries to per capita income was 2.4 in Latin America, 2.6 in Asia, but it was 5.6 in the 22 SSA countries for which data were available (World Bank 1988:46).

as likely to reflect the different proportions of the population dependent upon agricultural self-employment - and, thus, structural differences amongst countries - as it is the absolute or relative wage differentials between them. It is, for example, easy to show that exactly similar absolute levels of wages and per capita agricultural product would produce widely different wage/per capita income ratios as between low- and high-agriculturally-dependent states. The more instructive comparisons, therefore, are between teachers' salaries and per capita agricultural product on the one hand, and the salaries earned by 'similar' workers in other sectors of the economy on the other.

As regards the latter, wages in the teaching profession in most countries are determined in the context of established differentials with other professions. Although there may be some flexibility for raising or lowering salaries earned by one group, the extent to which this can be achieved without generating equal or compensatory pressures from or for other groups is usually fairly limited. Thus the issue of teachers' salaries cannot usually be addressed separately from that of the level of wages and salaries more generally.

In this regard, recent changes in many low-income and adjusting countries are beginning to make the argument that wages are too high seem absurd. In fact, real wages outside agriculture began falling in Latin America and in Sub-Saharan Africa from the mid-1970s onwards. In Latin America, experience was mixed, with Brazil, Argentina and Colombia registering significant gains in real wages over 1971-84, compared with sharp falls in Bolivia, Paraguay, Venezuela and elsewhere. In SSA, however, the situation was completely different. Wages have fallen in almost every country for which data are available, and in some cases (Ghana, Tanzania, Sierra Leone, Zambia) dramatically so. The results have been that in SSA real wages were typically halved between 1970 and 1985.[6]

6. The evidence for this statement is in Colclough, 1989.

Teachers have been able to mount little defence against these trends. Indeed, in so far as public servants have often taken the brunt of salary decline, the earnings loss for teachers will tend to have been rather greater than the average figures indicated above would suggest. Table 1 confirms that the impact of salary decline in the teaching profession has been particularly strong in SSA: unit teacher costs declined in 12 of the 14 SSA countries having comparable data for the early 1980s, often by considerable proportions. These changes, of course, also reflect changes in materials and other support costs; but, given the large dimensions involved, they mainly reflect real salary decline. In current circumstances, many countries have experienced such a sharp reduction in teacher morale and efficiency that the major operational question is not whether, but how, to <u>increase</u> the real value of wages and salaries - even at the cost of having to reduce the numbers of those currently employed.

At secondary and tertiary levels, particularly outside SSA, there may be still some scope for achieving cost-savings via salary compression between teachers at different levels of the hierarchy. It must be noted however, that the long-established trend of reducing earnings differentials between jobs at the top and bottom of the formal sector (classified according to either occupation or educational qualifications held or required) has, if anything, accelerated during these recent years of earnings decline. All of this implies that whilst further compression may be possible via real earnings decline for more senior grades, many (though not all) countries have already moved in this direction as strongly as is, for the present, compatible with minimal standards of teacher efficiency and morale.

<u>Structural change</u> Salary decline is not the only means of reducing the amount which the average teacher is paid. This can also be done by changing the structure of the profession towards a more intensive use of lower cost personnel. There are various ways of achieving this. In countries where salaries are tied to education or training qualifications it may be possible to reduce the education/training level and/or mix without significantly affecting teacher quality or performance. As our case study in

the Appendix shows, the Government of Senegal has progressively increased the proportion of "assistant teachers" over the last few years. This is reported to have contributed to a reduction in unit costs with no noticeable negative impact upon teacher quality. Colombia was able to reduce teacher costs in similar ways, by increasing the roles of 'teacher helpers' in the 'Escuela Nueva' programme. (See Case Study No 5, in the Appendix). Not all countries are in a position to introduce such reforms. They would often be inappropriate for those in which the proportion of untrained or insufficiently educated teachers is already large. Elsewhere, however, there do seem to be potential savings to be made.

Finally there is scope, in many education systems, to redeploy staff in ways which reduce overheads. In Ghana more than 5700 non-teaching staff were removed from the payroll in 1986; this was equivalent to more than 20 per cent of non-teachers at secondary/tertiary level, and to more than 5 per cent of the total teaching force, bringing significant unit cost savings (Case Study No 1, Appendix). Senegal, too, has redeployed 1260 administrative staff into the teaching force - which would be generally possible in cases where educational administrators are also qualified teachers. These experiences, then, provide useful lessons for low income and adjusting countries, where a number of similar reforms could be tried.

Teacher-Pupil Ratios

The second major way of reducing the unit costs of schooling is by using teachers more intensively. About half of the Sub-Saharan African countries for which data are available had pupil-teacher ratios of 37 or less at primary and 23 or less at secondary levels in the early 1980s. Where salaries are a high proportion of recurrent costs, a 20 per cent increase in this ratio - from, say, 35 to 42 at primary, and from 23 to 28 at secondary - brings an almost exactly similar budgetary saving. Here, then, there appears to be significant scope for reductions in unit costs.

Multiple shifts One way of making more intensive use of teachers is to introduce some form of multiple shift schooling. Under such

systems two or more entirely separate groups of pupils are accommodated for regular teaching during the same term, week or day in the same school. The most common of such approaches, the double-shift system, involves one group of pupils attending in the mornings and a second group using these same facilities in the afternoons. But there are many other variants.

Whether teachers' salary costs are reduced depends upon the particular system used. If each shift requires a different set of teachers (as in Singapore) there would be no salary savings for teachers. Alternatively, if teachers are paid for the work they do pro rata salary costs would be unaffected, although the number of teachers required - and, thus, housing and teacher training costs - would be much reduced in comparison with single-session arrangements. Again, if teachers are paid more for two sessions than for one, but at a lower hourly rate [as in Senegal (Case Study No 2) where those teaching the second shift receive a 25 per cent supplement to their basic salaries for a 48 per cent increase in hours worked and, and as in Ghana, where a 60 per cent allowance for double-shift teaching is paid (Case Study No 1)] savings in both the number of teachers and in the salary bill can be achieved.

As regards recurrent costs more generally, double shift schooling does usually involve economies in the employment of clerks, cleaners, maintenance and security workers. These and other recurrent costs are not halved by double-shift methods, since the more heavy use of plant involves higher maintenance expenditure than in the case of single-shift. Nevertheless economies here can be significant.

The most substantial area for cost-savings from double-shift teaching is in the area of capital costs. Here, major savings in land, equipment, libraries, laboratories and classrooms can be made. Zambia's extensive use of double and triple shifts allowed its capital costs at primary level to be almost halved (Bray 1989: 32). This was exceptional since there are a range of reasons why moving to a double-shift system would not reduce costs by half: in Jamaica and Malaysia the extra maintenance costs involved together with lower average enrolment in the afternoons resulted

in capital cost savings of 32 per cent and 25 per cent, respectively.

Although the balance of the above observations is fairly strongly positive, there is, of course, a range of economic costs that attend the introduction of double-shift schooling: parents have to look after their children for the shift which they do not attend, the costs of which, in the marketplace, may be substantial. Tutors are sometimes privately retained in order to compensate for the short day that double-shifts usually imply. Finally there are a range of risks to the quality of schooling of which it is important to be aware: the school is usually more tense and hurried - both breaks and teaching time are reduced; teachers, particularly those who have already taught a morning session, may often be tired and therefore able to offer only an impeded service; preparation and marking time is squeezed; management costs, and failures, rise the more difficult the conditions become. Perhaps most significantly for SFA policies younger children tend to be double shifted in afternoon sessions which are generally less attractive to teachers.

Nevertheless these, and other problems are not decisive. There is in fact very little concrete evidence to suggest that double-shifts (and their associated loss in time inputs) have any significant impact upon the cognitive achievements of children. Early studies in Malaysia (Beebout 1972) and Chile (Farrell and Schiefelbein 1974) found no significant association between the level of academic performance and the number of shifts in which a school is daily utilised - except where the physical facilities were not adequately designed to accommodate double-shift teaching. The experiment reported on in our case study of Senegal is also positive in this respect. Here, more than 14 per cent of primary school pupils were enrolled in double-shift classes by 1988. This had allowed an 11 per cent increase in enrolments with only a 2 per cent increase in the teaching force. An evaluation of the experience in 1989 showed, on the basis of language and mathematics tests, that the move to double-shift teaching had not been associated with a reduction in school quality (Senegal Case Study No 2).

Reducing the attendance obligations of pupils appears to provide a further way of increasing pupil-teacher ratios. Shortening the number of weeks in the school year, however, is probably associated with declines in quality, except where gross inefficiencies or teacher absenteeism are already prevalent. But evidence from Venezuela suggests that reductions in the number of hours per day is probably not so clearly associated with qualitative decline (at least down to about six hour per day). Part-day attendance - as in double shift schooling - tends to reduce the opportunity costs of schooling for poorer households, who may have to depend partially on child-labour. For all these reasons a move to double-shift teaching presents one of the most promising means of reducing pupil-teacher ratios in many countries.

Increasing class size The final means of using teachers more intensively is via increases in class size. Research in some developed countries shows that variations in class size from 25 to 40 students have no effect on the performance of children in achievement tests. At primary level, classes of up to 45 children are judged to be tolerable - if undesirable - where costs dictate this. Whatever the reported average figure for class size at the national level, however, there is always a wide dispersion around the mean. Obviously attempts to raise class size should focus upon those schools with the smallest number of children per class, whilst reducing, wherever possible, the number of over-crowded classes.

Sometimes, within individual schools there are opportunities for a more rational utilisation of teaching staff. For example, one recent field trip identified a school in Sri Lanka where the primary one class had over 80 students and one teacher, yet the grade 8 classes, taught by specialist teachers had less than 20 students per class. This skewed utilisation of teaching resources is common elsewhere and is often concealed by the presentation of aggregate data at system rather than school level.

Often, of course, the population density in rural areas presents barriers for easy increases in class size - whereas overcrowding is a problem in urban centres. School mapping, and the

rationalisation of facilities can help to tackle this. But in some countries the geographical distribution of the population of school-age does present an important constraint on the effectiveness of these measures.

Improving internal efficiency

The counterpart to using teachers more intensively is achieving a more effective use of pupil time. The unit costs per graduate from each level of the school system are increased the longer it takes the average child to graduate. Reductions in this average time span - by reducing the incidence of early leaving and repetition of grades - thereby reduce unit costs.

In all systems there are defined points at which children leave school. In most LDCs such leaving points include the end of primary, mid-secondary, senior secondary and tertiary. Children who leave school at points other than these are often described as 'drop-outs'. Yet whether their 'drop out' is indeed more wasteful than that of children leaving at one of the established exit points is debatable. It is only so if the benefits of schooling accrue not on a pro rata basis for each year attended, but if they are more than proportionately bunched at the end of each particular cycle. This may be plausible for some - but by no means all - curricula, but particularly for skills which like literacy and numeracy, take several years to acquire. At higher points in the primary cycle where, it is to be hoped, basic skills have been acquired, it is the social principle of SFA, rather than the principle of economic efficiency, which is countermanded by subsequent drop-out.

In 25 low-income countries of SSA 13 per cent of primary school pupils and 10 per cent of secondary school pupils are repeaters [data are for 1983, World Bank 1988: 136]. But the range across countries is very wide - from one-third of primary school pupils in Mali, Togo, Central African Republic and over one-fifth in Benin, Guinea-Bissau, Guinea and Mozambique, to close to zero in Tanzania, Zimbabwe, Ghana and Zambia where policies of automatic promotion prevail. This range demonstrates the opportunity: primary enrolments could be increased by over 20 per cent in six

of the low-income African countries shown in Table 1, simply by abolishing repetition.[7] Furthermore, in the average SSA country this reform would be capable of pushing enrolment ratios up from their present two-thirds to around three-quarters without any increase in educational costs.

The impact of abolishing repetition on learning achievement within education remains controversial. Clearly, some small level of repetition allows slow learners with special problems to be diagnosed and helped. But the standards adopted for securing progression within the system should not be set at a level which is inappropriate for a significant number of students in each grade. There is no doubt that repetition rates should be reduced in most of those countries which are currently far from achieving SFA. In most such countries savings of at least 5 per cent of recurrent spending on education would result, without substantial costs to the quality of schooling being incurred.

Capital costs

Capital expenditures on education in low income and adjusting countries have fallen during the 1980s - much more sharply so than recurrent expenditures on education in real terms. But this has primarily been a function of budgetary constraints, and only rarely because of savings in capital costs.

Comparative data on construction costs in education are scanty and unreliable. However the experience of a number of countries demonstrates that, by using local rather than imported materials, and by using low cost, low maintenance construction technology considerable savings can be made. As a result of these kinds of innovation, together with increasing the involvement of local communities in construction work, Senegal has reduced capital costs by 40 per cent - albeit from a very high cost base - since 1985 (Case Study 2).

7. These countries comprise all those with gross repetition rates in excess of 20 per cent, with the exception of Togo, where the primary gross enrolment ratio already exceeds 100 per cent.

Boarding versus day schools

Both capital and recurrent costs can be affected by a number of the reforms discussed above: multiple shift schooling, reductions in teacher requirements and repetition rates each reduce both recurrent and capital costs of schooling. A final important means of achieving such cost reductions would be by reducing the incidence of boarding schools - particularly at secondary level. Recent evidence, from Malawi shows that the annualised capital and recurrent costs per pupil of boarding schools are more than twice as high as those of day schools. For Somalia the differential appears to be as great as 3½ times (World Bank 1988: 60). Ironically boarding is particularly prevalent in the countries that can afford it least. Thus quite a high proportion of the most educationally disadvantaged countries shown in Table 1 provide boarding facilities for a significant proportion of secondary students. The main reason is that where a fairly small proportion of primary leavers continue to secondary school, it is frequently not possible to provide cost-effective day schools in rural areas. Boarding is therefore necessary if children from rural households are to gain access to secondary school.

To some extent, then, higher secondary unit costs in poorer countries are an inevitable consequence of their lower secondary enrolment ratios. Whilst this situation cannot be changed overnight, care is needed to reduce dependence upon boarding as secondary education expands and as day-provision becomes increasingly viable. Eligibility for boarding status should be sharply restricted to those from isolated communities: children from urban households should not, under normal circumstances, be allowed to board.

3.2 Restructuring Education Systems

This section considers changes in the structure of educational systems which could enhance resources for progression towards SFA. None are panaceas but many offer useful contributions to expanding access and enhancing achievement over the first cycle at realistic levels of cost. The structural changes we consider here can be broadly classified as follows:

- changes in the length of different educational cycles
- changes in the age of entry to formal schooling
- organisational and pedagogical reforms
- developing links between education and productive work.

Firstly, however, it is worth noting some structural features which are common to many education systems. These provide a framework for our subsequent analysis.

1. There is a wide variation in the length of different educational cycles in different countries. The longer are these cycles, especially at the higher levels, the greater the resources required for their support. Longer cycles tend to have lower successful completion rates than shorter ones.

2. The majority of countries enrol students for the first time between the ages of 5 and 7. Many of the poorest countries have significant proportions of over age students enrolled at any given grade level. Lower ages of first entry imply longer periods of schooling before students reach employable age.

3. Enrolments are concentrated in the first cycle where unit costs are lowest. Typically these unit costs are between 2% and 10% of those at tertiary levels. Technical and vocational education tends to be more expensive in unit cost terms than general schooling. The benefits arising from these additional costs are often not clearly signalled by effective demand in the labour market.

4. The organisation of teaching and learning varies widely. In many systems physical resources are not fully utilised throughout the working day or working year.

5. Pedagogical methods used appear capable of producing student achievement in line with curricula goals, as evidenced by the performance of successful individuals and institutions. However they frequently fail to produce learning outcomes that indicate most students are achieving well, as evidenced by high failure rates, repetition, and drop out patterns.

6. Opportunities to mix periods of study with productive work are a feature of some systems at levels beyond the first cycle and these can make useful contributions to cost reduction.

7. Non-traditional educational delivery systems are widely used (distance education, non-formal programmes etc) but are rarely if ever the main source of provision for primary school age children. In most countries non-formal educational expenditures are a small percentage of those on the formal system.

The critical policy question that arises is which structural reforms can be identified which offer savings and increased efficiency without compromising educational quality?

The length of the formal cycle

The length of school cycles varies considerably between countries. Primary schooling most commonly takes 6 years (over half of all countries) but there is an extreme range of 3 to 9 years (see Figure 1); secondary schooling lasts from 2 to 9 years, although 6 or 7 years is most common (Figure 2). Further and higher education ranges from 2 to 6 or more years with a wide variation of patterns at degree and sub-degree levels.

These general patterns conceal wide variations. For example it is quite common for parallel systems to exist at secondary level with different curricula biases (technical, vocational etc) and lengths. A number of systems have variable length first cycles (to cater for example for the need to transfer to a different medium of instruction). The length of cycles obviously has implications for the resources needed to achieve SFA. There are two elements to this:

a. <u>The length of the first cycle</u> The greater this is, the greater will be the costs of providing places throughout the cycle for a cohort. A reasonable assumption is that these costs increase pro-rata for every additional year. Excessively long cycles are likely to have lower internal efficiency because possibilities for repetition will be greater and drop out is more likely before the end of the cycle. Where this is true the number of student places that have to be provided per successful completer will rise.

b. The length of secondary and tertiary cycles In the context of highly constrained public budgets, there is a trade-off between the provision of places at different levels of the system. The opportunity costs of tertiary education are high (Table 2). The most problematic cases are where long primary cycles are coupled with long secondary and tertiary cycles. Ghana, for example, until recently had as many as 17 years formal education before entry into tertiary level institutions.

It is important to recognise the differences between the official length of the first cycle and its length in practice. Where there is significant repetition the real length will be greater than the formal length. When this is compounded by substantial drop-out many more places than the number of students in a cohort may have to be provided over the length of the cycle. This is reflected in high average length of study to complete 5 years schooling and low survival rates which have deteriorated in a significant number of countries since 1980.

UNESCO statistics indicate that the average length of time for a student to complete a 5 year cycle varies from 5 to 7.7 years. For 25 African countries only 3 have averages below 5.5 years and in 13 it was over 6 years. Less than 75% of the cohort survive to grade 5 in 28 of the 57 countries in the sample, including 15 of the 25 African countries (Berstecher 1989). An important corollary is that these ratios have been deteriorating in 22 countries since 1980 - more strongly so in the Arab world than elsewhere - with consequent increases in the cost of achieving SFA.

It is a complex matter to determine to what extent the length of a cycle affects school achievement. Data from the International Association for the Evaluation of Educational Achievement indicate that longer cycles do not necessarily produce higher school achievement when international comparisons are made. Although this does not imply that shortening a cycle length will have no effect on achievement, it is nevertheless possible that if measures to increase the effectiveness of teaching are introduced at the same time as reductions in cycle length, achievement levels could be maintained and cost savings made.

The most relevant structural question here for the policy debate on SFA concerns the length of post-primary cycles. This, together with the progression ratio from primary to secondary schools, has substantial implications for resource allocation. If post primary education is operated in high cost ways (residential schools, technical and vocational schools, significant staffing by expatriate teachers) higher levels will absorb disproportionate amounts of resources.

Senegal provides an example, where, in 1985, primary schooling received 46.3%, general secondary 17.4%, technical secondary 5.9%, teacher training 1.8% and higher education 18.9%, with administrative costs taking the remaining resources available for education. The net enrolment ratios at primary were 39.6, lower secondary 11.7%, upper secondary 4.5% and for higher education 2.0%. Public resources for education in Senegal are highly skewed in favour of those whose final level of schooling is upper secondary or University education. The World Bank (1986b:28) calculates that 4.5% of the age group benefiting from this receive, cumulatively, 50.7% of the public resources available for education.

Similar examples are common. Although there are many other factors at work, reforms to the structure of post primary provision could release resources to improve both the quantity and quality of first cycle schooling. Some countries have already taken initiatives in relation to this. Thus in Ghana the pre-university cycle has been reduced from 17 to 13 years to be phased in over the period 1987-92. The intention is to reallocate the savings made from this to enhancing primary provision (See Case Study 1).

There is no internationally optimum cycle length. As regards primary schooling, there is some agreement that at least four years are required to establish the basis for sustained literacy and that six years is desirable. Research suggests that enrolment for more than four years in school is associated with declines in fertility rates. The educational level of parents, and especially of mothers, is also correlated with lower infant and child mortality, and with the health of children. There is also

evidence that farmer productivity is enhanced by at least four years of primary schooling (Colclough 1982; Lewin et al. 1982).

Our analysis suggests there is a level of consensus internationally that six years of schooling should constitute a basic minimum primary cycle. This is needed to gain the range of benefits associated with successful completion of primary school. Six years has become the most common primary cycle length in both developed and developing countries, reflecting this emerging consensus.

Initiatives in countries which already have high gross enrolment ratios increasingly reflect commitment to an eight or nine year open access primary cycle. This raises the important issue of the relative benefits of expanding primary schools or locating grades 7 to 9 in junior secondary schools. The latter generally have higher unit costs and in most systems a change of school is associated with increased drop-out at the transition level. Curricula and pedagogic concerns are relevant to the choice of strategy. At present, curricula differences between primary and junior secondary schools tend to be much less marked in developing than in some developed countries (for example, it is common to find subject based curricula with roughly similar time allocations at both primary and secondary schools in many developing countries, unlike in the United Kingdom where primary curricula have had a much lower level of subject specialisation than secondary). These observations favour the argument for the lower cost strategy of extending primary enrolments upwards. Though these are legitimate needs for a degree of specialisation and for dedicated facilities (as in science) at the grade 7-9 level, these are not necessarily best met in conventional secondary schools where such resources are generally made accessible to older students, rather than those that SFA is concerned with.

Age of entry to primary

The most common age of entry to the first cycle in all regions is 6 years (see Figure 3). Latin America and Oceania are the only regions where a substantial number of countries have an entry age of 5 years. Africa has the highest proportion of systems with an

entry of age 7 years. In most cases these are minimum ages for entry, with over-age entry being frequent. The policy issue here is whether ages of entry should be changed and, if so, what are the educational and cost implications.

The age of entry to schooling is falling in many countries. This is occurring firstly because of a reduction in over age entry as systems develop. Secondly many countries have established pre-school facilities. These are often financed privately. Consequently they are more prevalent in urban and relatively wealthy environments and in middle income rather than in the least developed countries.

The significance of entry age for achievement depends partly on the quality of the educational environment outside the school. This comprises many aspects including the effects of child rearing practices, the support for educational activity in the home, the existence of informal groups to support the educational development of pre-school age children, and the richness of learning opportunities outside the home. Many studies of cognitive development indicate the importance of early learning experiences for subsequent development and provide a compelling case for early entry to school. The periods of greatest plasticity in intellectual development occur at the youngest ages and this is where the greatest gains appear to take place. These may also require less expensive learning materials and fewer specialised physical facilities than does the learning of older children. Differences in learning achievement between poor rural children from educationally disadvantaged backgrounds and their more favoured peers increase over time. Thus, providing equitable and early access to primary schooling is likely to lessen the cumulative differences that would otherwise emerge in learning achievement associated with out of school influences. If school effects have greater influence upon academic achievement than do out of school factors the case for early enrolment is further strengthened.

Where an increase in entry age has been tried it has generally proved unpopular with parents. Thus in Sri Lanka the age of entry was raised in 1972 from 5 to 6 years and the open access cycle was

shortened at the same time from 10 to 9 years. This lasted until 1977 when a new government reduced the entry age to 5 again in the face of widespread dissatisfaction.

Thus the case on educational grounds for restructuring in relation to age of entry favours lower rather than higher ages, though this would carry a cost penalty. Current trends are towards reductions in the school entry age, and there is convergence around 6 years. Reductions below this are premature unless SFA goals are close to being met. The challenge is how to make earlier entry ages available in ways which make more use of the child's community resources - through for example structured play groups and informally organised kindergartens - which can be supported at much lower costs than those of enrolments in formal schools. In most countries, raising the entry age in order to reduce costs is likely to prove politically unacceptable and is educationally unattractive.

Organisation and Pedagogy

Ways of organising and providing education vary widely. This draws attention to the different ways in which physical facilities and human resources are used. The key question for SFA policy is which organisational and pedagogical reforms offer the most cost effective leverage on improving internal efficiency. Three preliminary observations give insight into this.

First, the number of school days vary widely from system to system. For example in the IEA science study countries, hours per year of total instructional time varied from 760 hours (Finland) to 1400 hours (Philippines) at level 1 (predominantly 10-11 year olds). The teaching loads of teachers are also widely distributed - in some countries these may approach 40 hours in double shift schools, the majority of this time being spent in contact with children; in others loads of three or four periods a day, amounting to about 15 hours teaching a week are common. Teacher-class ratios span the range from less than one to more than two teachers per class in some favoured institutions. The number of non-teaching staff on school payrolls also varies from minimal allocations to numbers that are comparable with the number of

teaching staff. These variations suggest that resources may be available that could be mobilised so as to increase both the quantity of school places and the quality of provision at very low additional cost.

Second, pedagogical practices typically involve students remaining in whole class groups during all teaching hours. Time spent by students working without direct supervision during school hours is usually small. Where it arises it is more often a product of teacher absenteeism than of design. Yet much useful learning does not depend on the continuous presence of a teacher. Opportunities to exploit peer group learning, involve older children in collaborative learning with younger children, and to mobilise community resources to supervise and assist with structured learning tasks are often not as widely utilised as they could be.

It is also the case that curriculum design reflects the presumed needs of more able learners more often than it recognises those of average or below average achievers. Frequently the infrastructural needs for successful implementation in average and below average schools are assumed rather than planned. Continuous and linear learning sequences are more common than modularised learning units that can be deployed flexibly to cater for widely varying needs, readiness to learn and irregular attendance. Inordinate amounts of instructional time are given over to practice for public examinations which may have backwash effects that extend through the curriculum over several grades. Many of these attributes which limit the accessibility of the curriculum to learners, could be changed for costs which are small compared to the recurrent budget. Several offer scope for savings that could be used to increase the number of places available.

Third, school years average about 180 days. On the basis of a 5.5 hour timetabled day this results in a 990 hour instructional year. But this belies the fact that in many systems far fewer days are actually available for teaching. Experience from several countries indicates that the real number of teaching days in rural primary schools may be anywhere between 10 and 30% less than the official number. The reasons commonly include:

- loss of teaching days at the beginning of the school year and school terms for registration of new and returning students, school refurbishment/cleaning etc
- a week or more per term involved in examining when normal teaching is disrupted (often more in schools with secondary grades involved in public examinations)
- a week or more involved in examination revision
- special school events - sports days, school exhibitions, visits by dignitaries
- public holidays falling during the school year
- unplanned occasional leave, and teacher absenteeism.

This can be a serious problem. In Sri Lanka it has been estimated that teacher utilisation is around 70% as a result of the accumulation of various types of leave, (World Bank 1989:50). Clearly higher teacher attendance coupled with full utilisation of teaching days would significantly increase the hours of instruction available, or, alternatively, allow access for more children at little or no extra cost.

Pedagogic reform has been high on the agenda in a number of countries and it is to this that we now turn our attention. Many of the innovations that have been introduced seek to increase the amount of self instructional time, make extensive use of written and audio-visual material, and sometimes use strategies where children teach other children. 'Project Impact' is one of the most well known attempts to do this through the use of all of these strategies. Its original goals included increasing student teacher ratios to 150:1 or more, thus making considerable savings on the largest single cost - teachers' salaries. From its origins in the Philippines and Indonesia derivatives have spread to Malaysia, Jamaica, Liberia and Bangladesh (Cummings 1986).

Though it is clear that these projects have had many positive outcomes, large cost savings have not been clearly demonstrated. In the Philippines changes in the arrangements for financing of schools such that they would be encouraged to hire fewer teachers and invest in more self-instructional materials did not take place as anticipated. The 40% cost savings which had been projected did not materialise. Those savings which were made produced no

financial benefits to the schools that made them and there was consequently little incentive to sustain the innovation. In the Liberian case the average school size did not reach that necessary to realise significant economies of scale, and the evidence suggested that the unit costs for project schools were likely to exceed those for ordinary schools. In Indonesia the cost savings were also less than had been hoped. Materials costs per student were 25% higher than in conventional schools though this was offset by lower staff costs to result in overall savings in recurrent unit costs of between 2 and 12 per cent.

The Impact projects do indicate that learning achievement does not necessarily suffer if reductions in the time students spend with teachers are accompanied by support for productive learning. However, where such systems are in competition with a conventional pedagogy of whole class teaching throughout the school day, the experience suggests that self instruction approaches will be less attractive. They may wither if the benefits of savings are not returned to the institutions that make them. There would seem to be scope in many systems to experiment with innovations that are less radical than IMPACT originally was. For example, introducing only one self study period a day could release 10% or more of teaching time if carefully organised, representing a very worthwhile increase in teaching resources.

Another pedagogical innovation that is capable of producing cost savings is distance education. This is more widely employed at levels above primary and it is there that its attractions seem greatest. However the costs of distance education are not necessarily lower than those of traditional delivery systems and a mixed picture emerges if costs per successful graduate are computed.

A final pedagogical innovation worth comment relates to curricula goals and achievement. Many mass education systems are based on the assumption of a basically linear progress through successive levels where what is taught and learned at one level is extended and deepened at the next. In principle this cumulative model of learning ought to result in higher and higher levels of achievement through the school system. The evidence from

achievement studies and from the raw score performance of students in many systems is disquieting. Failure to master large proportions of the curriculum at a given level is widespread in that significant numbers of students score at chance guessing levels on multiple choice tests after several years of instruction. (Thus in the IEA science study the bottom 20% of the "population 2" students in Ghana, Nigeria, the Philippines and Zimbabwe scored close to these levels.) Though this kind of data requires careful interpretation these results will not surprise examiners in many countries who are accustomed to raw score performance figures on public examinations comparable or worse than these.

If curricula in successive grades are based on the assumption of mastery of the lower levels and many students have at best a poor grasp of previously learned material problems of enhancing achievement will be compounded. Far from being progressive, learning may become more of a cycle of cumulative confusion where at each level smaller and smaller proportions of what is supposed to be mastered have actually been mastered. The solution is to construct curricula goals which are within reach of the majority of children, to emphasise those learning outcomes thought to be essential to all or most of the school population and to concentrate resources on their achievement (See case study of Colombia). The objection that lowering over ambitious achievement goals would damage the achievement levels of the most able students can be countered through the introduction of express promotion streams. This reform would incidentally result in a release of school places that could be made available to those not currently enrolled. Curricula reforms of the kinds suggested are a precondition for successful implementation of automatic promotion policies which can enhance progress towards SFA.

Individually none of the organisational and pedagogical innovations discussed here are likely to transform the prospects of achieving SFA. Many facilitate more efficient use of existing resources, and, in combination, offer prospects of significant increases in provision whilst maintaining quality and without escalating costs.

Developing Links Between Education and Productive Work

Socially productive work as part of education can release resources for SFA. It can do so by reducing the time in school of students whilst shifting responsibility for their supervision and training to other organisations that benefit from their work. The economic attractiveness of these schemes lies in the budgetary savings which they generate. Such savings will occur if needed tasks within the public sector are performed at costs less than the market wage. Educational benefits may also accrue for less than the cost of fulltime schooling. Some recurrent costs (e.g. school meals, maintenance) can be subsidised by the labour of students. Work experience is generally thought to contribute to character building and national unity as well as to transmit useful skills and to assist community development.

Community service schemes that provide opportunities for older students to work as unqualified teachers or as teacher assistants in primary schools do have the potential to make a real contribution to SFA where shortages of teachers are acute. Though such students may not be as effective as trained teachers there are many support roles that they can play (practising reading, supervising self study, assisting with marking, organising creative activity and sports). This can release the time of trained teachers for important pedagogical tasks for which training and experience is needed. Opportunities of this kind may also attract more students into the teaching profession and give them a head start in developing teaching skills and adjusting to the world of work. To the extent that they are remunerated at much lower levels than trained teachers there are cost advantages. In so far as they are seen to assist rather than replace full-time teachers their roles need not necessarily be seen as a threat to teachers pay and conditions of service.

Innovations that link education and productive labour have several limitations. Amongst the most important are

- students and parents may react adversely to increasing amounts of time allocated to production if this is seen to damage

performance prospects in competitive examinations which give access to modern sector jobs.

- the physical limitations of school environments preclude some kinds of activities - e.g. agricultural production depends on the availability of suitable land; production of artifacts for sale depends on materials, tools, and an accessible market.
- educational institutions may compete with local producers and undermine their livelihoods if they produce surpluses for sale.
- production linked to education is likely to be less efficient than commercial production; it therefore has to be subsidised (directly or through discounting labour costs) or protected.
- scarce production skills have an economic value and skilled practitioners may be unwilling to share these with others.
- too much emphasis on production (in order to compensate for declining school revenues) may lead to the subordination of learning to repetitive manufacturing tasks which provide little coherent skill acquisition.

The vocational school fallacy propounded by Foster (1965) is still a powerful explanation of the limits to which vocationalisation and education with production innovations can be pushed. In many of the least developed countries schooling is seen as a conduit through which scarce opportunities for modern sector employment are regulated. The symptoms of the Diploma Disease (Dore 1976) which accompany excess demand for access are not easily neutralised by appeals to eschew academic schooling in favour of acquiring vocational skills for which the rewards are much less attractive.

For most of the first cycle substantial allocation of time to work experience seems of marginal value. Its benefits have to be set against the success of students in reaching basic learning goals, which most systems value highly, but which many students fail to reach satisfactorily. The more time that is allocated to work experience, the less will be available for basic learning. Older students can make useful contributions to the economics of schooling and the balance of advantage for learning tasks related to production, as opposed to basic skills, may look different as entry into the labour market approaches. Successful schemes can

generate contributions to food consumed by students, cash income from the sale of artifacts, and worthwhile inputs into the maintenance of plant. These are likely to be a small but useful proportion of total recurrent finance.

Redistribution of Expenditures

Where resources are severely constrained, as they are in the poorest and most heavily indebted countries, progress towards SFA requires policy measures that redirect expenditure to the first cycle. We have identified five types of redistribution that need consideration. These focus on redistribution between sectors, delivery systems, higher and lower educational levels, types of institution, and types of expenditure. The overriding policy question here is which kinds of redistribution are a priority in pursuing SFA and how can these best be encouraged by national and international initiatives.

Redistribution between sectors

Redistribution between sectors occurs for both intended and unintended reasons. The first issue here is the relative share that education budgets take of the national budget compared to other sector headings. The evidence suggests that for a substantial group of countries, especially those in sub-saharan Africa but also in other regions, educational expenditure as a percentage of the national budget has declined more often than it has increased over the last decade. Data from World Bank development reports suggest that over the period 1972-86 more than twice as many low and middle income countries reduced the proportion of government expenditure on education as increased it. Moreover this redistribution was stronger in relation to the education sector than for any other. It appears that military expenditures have not suffered in the same ways, the more so since they are often thought to be under represented in national accounts. Even where proportional allocations have remained unchanged for education, low or even negative growth in the budget as a whole in those countries seriously affected by recession has reduced the real value of educational expenditure.

The direct and indirect costs of civil disorder and war are difficult to estimate. In those countries most severely affected such costs have a substantial negative impact on GDP growth and on the level of non-defence related public sector spending. A recent study argues that 21 out of 53 African states have experienced war as one of the largest factors in suppressing economic growth, comparable only to the effects of decline in the terms of trade. This has resulted in a decline in GDP growth regionally from a probable 5-6% to an actual 2-3% (i.e. below the average rate of population growth, representing a per capita reduction in GDP in many cases (Green 1990)). Examples from Asia and Latin America suggest similar trends. In Sri Lanka government spending on development projects has been truncated whilst civil disorder persists, drawing attention to other deleterious effects of violent strife. These include dislocation of development plans (such that gains made may be negated), destruction of infrastructure and physical facilities, reallocation of skilled and trained staff away from the social sectors, and the neglect of medium term planning and policy review. All these circumstances inevitably contribute to undermining the morale and professional commitment of teaching staff, one of the most fragile and critical commodities of all.

In a good number of countries the squeeze on educational spending - absolutely and as a proportion of the national budget - has been a consequence of the rapid escalation of debt service payments. These have reduced the public expenditure base available for social sector spending. The World Bank Development Reports indicate increased allocations given to "other expenditure" in national budgets, and this reflects the increased burden of debt reservicing. Indeed debt servicing as a % of export earnings has grown sharply in the majority of developing countries since 1980.

The signals are therefore that some redistribution has taken place between sectors but in a direction that is unfavourable to educational financing. To the extent that this has happened it reflects a diminution in either ability or willingness to maintain resource levels, or both. It is, of course, important to ascertain which of these are the dominant factors. There appears

to be no simple relationships between GDP growth and educational expenditure as a proportion of the national budget (Berstecher 1989). It would seem clear that where reductions in effort have occurred (expressed as the proportion of the national budget allocated to education) these may be the result of a rise in debt service, or other 'exogenous' items; equally it may be that internal allocation decisions have favoured other sectors independent of the effects of recession. Our prognosis is that in the least developed countries it is more likely to have been a problem of ability rather than willingness and similarly so for the heavily indebted.

In sum every effort must be made to restore budgeting provision for education to former levels in those countries where it has fallen. As our later simulations show, the provision of SFA will require budgetary allocations well in excess of the present levels in those countries furthest from SFA targets. External assistance to promote SFA should explore methods to protect educational investment within the broader context of structural adjustment.

Redistribution within the education sector between different delivery systems

Though much has been written about the prospects for enroling more students outside conventional formal school systems there is little reliable evidence on the experience of so doing. Non-formal and out-of-school programmes are notoriously difficult to cost. Their forms are very varied, sources of support may be extremely diverse and include non-monetary contributions of uncertain value, successful completion rates and achievement data are often unavailable, the programmes themselves are often transient with costing looking very different at different stages in their life cycles, and target groups are often not clearly defined. Studies which have tried to compare the cost effectiveness of adult education delivery strategies have run into irresolvable problems arising from these factors (e.g. Carr-Hill 1984).

There is some evidence on cost-effectiveness related to systems that have adopted various forms of distance learning. These most

commonly include multi-media open university systems, correspondence colleges and radio learning. In most cases these have not supplanted the formal systems that exist alongside them, rather they are complementary, satisfying demand that cannot be met through existing institutions. Sixteen distance teaching projects, about half of which are at tertiary level, are reviewed in a recent study (Perraton (ed), 1986). Open University programmes seem to have lower costs per graduate than conventional enrolments, though there are almost as many cases where costs are thought to be comparable with some existing institutions. Amongst the secondary level programmes reviewed, several are more expensive per completed graduate than normal schools, although the majority appear to be cheaper. Completion rates are crucial to these calculations, yet these are often not easy to discover. We conclude that well designed and effectively implemented distance learning do offer scope for savings, but mainly at higher levels.

Studies of out of school learning indicate that there are a wide range of methods through which young learners can acquire valuable knowledge. There are many ad hoc arrangements of the informal apprenticeship variety and many countries have institutionalised shadows of the formal system in community supported centres. These are rarely given high priority by governments coping with severe under-funding of the formal sector since they have less political visibility. Employers may also be wary of supporting larger scale schemes unless they have some guarantee that those they train will use their skills within the company that sponsors them. Where skills are job specific these kind of schemes seem to be most successful. There is considerable unsatisfied demand for sources of knowledge outside the formal school system and much potential in exploring the best vectors through which this can be delivered.

In those countries which are experiencing the greatest recessionary pressures it seems likely that formal sector spending, and, in particular, salaries, will absorb an increasing share of the total budget. The reasons for this are elaborated below in relation to shifts between different types of expenditure. The result of this is that substantial growth in

government resources for non-formal education and non-traditional educational delivery systems is unlikely in most of the least developed countries. This does not preclude growth in non-government support for these programmes, though this requires mobilisation on a fairly large scale if it is to make a major contribution. The exceptions to this are where there are substantial cost advantages in adopting new delivery methods. Even these may be politically unattractive in the short term if they appear to offer educational opportunities that are seen as second best by their clients.

Redistribution between levels within the cycle

Redistribution of resources from higher to lower levels has an obvious multiplier effect built in since unit costs rise in all systems towards the higher levels. Thus limiting places at higher levels, or reducing the rate at which the state subsidises them, holds out the promise of providing proportionately more places at the lower levels roughly in the ratio of unit costs. As we have seen these very over a range between primary and tertiary levels of less than 10 times to more than 50. These observations have been frequently made and are often a historical product of inherited salary structures that separated national primary school teachers from expatriates working at higher levels of the education system.

There is no clear picture concerning changes that have been taking place in the distribution of expenditure between levels. In those countries which are approaching universalisation of primary it is to be expected that the percentage of the budget allocated to higher levels will grow as a result of increased post-primary provision. Most countries, even those with low gross enrolment ratios, have experienced historically higher growth rates at secondary and tertiary levels than at primary. This necessarily results in shifts in resources towards the higher levels. Exceptions are countries like Malawi and Tanzania which have deliberately limited the supply of post primary places and have resisted the pressures of excess demand to expand numbers, at least in so far as the publicly financed elements of the system are concerned.

In sub-Saharan Africa recurrent unit costs have been falling at all levels except higher. Median values in constant 1983 US$ have fallen from 67 to 48 at primary level; 362 to 223 at secondary; and risen from 2,462 to 2,710 at tertiary level over the period from 1970-1983. These aggregate figures require cautious interpretation since the countries for which data are available are not constant (World Bank 1988, A17/18/19). Nevertheless the trends they illustrate can be observed in many countries.

Mingat and Tan (1985) have made attempts to assess the impact on primary school provision of resources which could be released by reducing or eliminating subsidies at higher levels. Their study indicates that the scope for this tends to be greater in Francophone Sub-Saharan African countries where unit costs at higher levels tend to increase more steeply than in Anglophone Africa. Using data from 10 countries (8 of which are Francophone) they argue that 10% reductions in subsidies would permit about 2% increase in enrolments. Similar changes at secondary level would support an increase of 1.6% in primary enrolments at the same unit cost level. It is only when large reductions in subsidy and high levels of recovery of operating costs are introduced that substantial enrolment gains become possible. Thus if student subsidies were cut completely gross enrolment ratios (GER) at primary could be improved by up to 18 points, though the average is much less than this. Even removal of all subsidies at higher and secondary level and 100% cost recovery in higher education fails to release enough resources to universalise primary in most of the countries studied.

It is important to note that the effect on primary enrolments is least in those countries with the smallest current enrolment levels since they tend to have the smallest absolute enrolments in higher education and therefore the lowest amounts of subsidy which can be transferred. Since unit cost ratios are much lower outside Africa the impact of subsidy withdrawal there is potentially much less.

Worthwhile transfers <u>are</u> possible however. In a system which spends 20% of its finance on 1% of the cohort at tertiary level a reduction in the length of higher education by one year from say

four to three (and/or by combining some income earning work experience with study to achieve the same effect) could release, about 4% of the total education budget. This could represent as much as a 10% increase in primary expenditures and enrolments. The case studies draw attention to some examples where transfer of this kind is being pursued (e.g. in Senegal and Ghana).

An under reported aspect of distribution between levels with great relevance to policy for SFA concerns resource allocations within schools. Where schools include both primary and secondary grades it is not uncommon to find disproportionate amounts of resources allocated to the teaching of the higher grades. This may not be captured in data on whole school allocations where the assumption will be that the resources are distributed according to set staffing ratios etc. In practice higher grade classes tend to be smaller and therefore benefit from lower teacher pupil ratios and usually have more highly qualified teachers. Skewed resourcing towards higher grades also appears where cost recovery mechanisms are in place. The probability is that most contributions are collected from the lower grades (since there are more students in them) but that expenditure is biased towards the grades surrounding public examination levels. Such internal redistribution may represent a significant misallocation of resources if more emphasis on first level provision is intended.

Redistribution within levels between different types of institution

The issue here concerns the mix of types of institution at the same level and the mechanisms for their financing. The possibilities embrace public and private institutions, residential and day schools, fee levying and free enrolments, community supported schools, technical and vocational as opposed to general schools, and many others. Clearly some types of institution have higher costs than others and the question is whether changing the mix can lower average unit costs and therefore provide more places for the same money.

Our concern here is for first level institutions. At this level non-specialised day institutions generally have the lowest costs

and the case for specialised facilities is weakest. Boarding provision also seems over-generous except where geographical circumstances demand it. Reducing boarding provision at higher levels can create savings for the recurrent budget but our simulation model indicates these are likely to be small in relation to the overall costs of SFA. The issue of the costs and benefits of levying fees and allowing private provision to grow is taken up later in this paper, as is community financing.

The distribution of unit costs between similar institutions, some of which are relatively favoured in the allocation of teachers and resources is often a serious problem. It is not uncommon to find within the same area over-established schools with a surplus of teachers and other schools with only half the teachers to which they are entitled on the basis of their student numbers. This can occur where, for example, well established urban schools are attractive teaching locations and where many teachers are spouses of government workers located in the towns. Where salaries are paid from a central budget over-established schools suffer no penalty for excess teachers. In contrast under-established rural schools with less attractive working conditions suffer the double penalty of higher teaching loads and class sizes, and receive no benefit from the savings that are made on salaries as a result of their under-establishment. The consequence is that actual unit costs may vary between schools by a factor of 2:1 or more. Reducing these disparities is important for increasing internal efficiency and distributing quality more evenly.

Redistribution between types of expenditure

The final, and perhaps most critical redistributive issue for SFA arises from trends in the balance of expenditure between different categories - capital, salary recurrent and non-salary recurrent. These suggest that there has been a shift towards an increase in the proportion allocated to salary expenditure. This trend was strongest in the early 1980s and diminished over the most recent period for which figures are available. The slackening may well reflect the high levels reached: in many countries salaries account for more than 90% of the budget at the primary level. This shift towards predominantly recurrent spending on salaries

does not, however, indicate that salaries have been increasing in real terms. In fact, as indicated earlier the opposite has often been the case. Thus in Tanzania, for example, the real value of teachers' salaries at the top of the scale in 1987 was similar to that of starting teachers in 1977.

Interpreting fluctuations in capital spending on education is always difficult because of their stochastic incidence. However, in the most heavily indebted countries it has become common to find little or no development expenditure available except that which is externally financed. Cancellation of new projects and investment programmes is usually one of the first responses to austerity.

Materials and other non-salary recurrent expenditure have fallen, sometimes to close to zero. This is a fairly universal feature of countries suffering from recession (Lewin 1987; Cornia 1984). UNESCO data suggest that in all regions the proportion of educational budgets allocated to teaching materials has been diminishing. This has been particularly marked in Sub-Saharan Africa. In sub-Saharan Africa expenditure on educational materials represents 1.1% of the recurrent primary school budget amounting to less than US60 cents per child. And even this figure does not adequately represent what is delivered to the average child. For a good proportion of the school population it is safe to assume that this expenditure is effectively zero. This despite well known studies that indicate the strong relationship that exists between availability of textbooks and school achievement (Heyneman 1978). Some countries have taken steps to improve the supply of materials and increase their durability. The Philippines and Ghana are undertaking this in the context of structural adjustment (see case studies). Sri Lanka has had an effective free textbook scheme since the early 1980s.

The problems of planned or unplanned drift in the distribution of expenditure by type have several dimensions:

- the drift towards salaries and away from non-salary support
- the depletion of professional support for teachers (in-service courses, advisory and inspection services, learning material)

- increased reliance on non-government support.

The first and second result in the risk that the investment made in salaries is compromised by the deterioration in conditions to an extent where effective teaching becomes difficult or impossible. If there is no classroom furniture, little written material and no easily available pedagogic advice, teaching quality will be difficult to maintain. School inspectors with no resources to travel will be unable to advise schools effectively. The third may seem an attractive proposition and may result in significant community based support. But it is likely to be very unevenly distributed depending on the wealth and generosity of the communities that schools serve. The generation of resources from school communities may increase rather than diminish differences between schools.

Thus in Sri Lanka school fees are levied and school development societies collect funds. In a nationally representative sample of schools fee income was significant in only 63% of schools and in half of these it generated less than a third of the revenue that would have been achieved if all children paid the appropriate fee. School development societies functioned in 54% of the schools and in a third of these cases the resources generated through this route averaged less than 10 Rupees per child. 1% of public schools managed to collect more than ten times this amount, and a small number of private schools had school development societies which generated more than 500 Rupees per child (Lewin and Berstecher 1989). This has to be seen in relation to existing disparities in unit cost per child (of about 2:1 between districts) and variations in non-salary recurrent expenditure per child in different districts of 4:1 or more. Those schools with least income from these sources also tend to be the ones with lower allocations per child.

To conclude, the various types of redistribution identified offer the promise of real benefits for SFA in so far as they redistribute resources towards the first cycle. Where recent developments have been driven more by short term expediency in response to crisis than by medium term policy priorities a reappraisal is urgently needed. If SFA is to be resourced

economies must be made that will enable more primary level places to be provided without diminishing quality. Redistribution must favour lower rather than higher grades of schooling if resources available preclude growth at all levels. Commitment to SFA is inconsistent with any further erosion of overall sectoral allocation, and in most cases requires transfers towards the education budget form other sources. The next section addresses this policy issue.

3.4 Raising Additional Financial Resources

Public versus private provision

Earlier sections have indicated that the opportunities for reducing the unit costs of education, and for providing efficiency savings by restructuring school systems are significant, but that they are likely to provide only part of the 'solution' to the problem of universalising access to primary schooling. Equally we have shown that although the under provision of resources for education can sometimes be tackled by changing national spending priorities, it is not usually caused by governments giving too little importance to education relative to other sectors. The main problem faced by low income and adjusting countries needing to raise educational expenditures is one of insufficient financial resources to support appropriate levels of spending across the whole range of public sector activities. Education has been squeezed by the needs to cap public spending and to finance rising debt service obligations. But so too have expenditures in other sectors.

A critical question, therefore, is whether additional finance for education can be raised so as to permit SFA, and, if so, how this could best be done. A number of advocates of educational policy reform, including some aid agencies and international financial institutions, have in recent years concluded that additional resources for education will have to come from private rather than public resources.

User charges and private provision

There are three major arguments for the continued public provision of schooling. Firstly, the benefits of education accrue not only to the individual, but also to society at large. Thus, without state provision some under-investment in schooling would be likely, even amongst those who can afford to pay for it. Secondly, exclusion from school of those who are too poor to pay fees would involve efficiency losses arising from their unexploited human potential. Thirdly, it would strengthen existing inequalities by giving privileged access to education - and, hence, higher future incomes - to those who were already amongst the better off. These present a formidable list of dangers in the path of proposals to finance schooling privately.

These considerations have led in the majority of countries to a gradual shift away from dependence upon philanthropic and private funding sources, towards public provision throughout the twentieth century. In recognition of some of the dangers of leaving the provision of schooling to the private market, the UN Declaration of Human Rights, in 1948, included free elementary education as one of its major goals. Later pronouncements of the UN have tended to extend the advocacy of free provision - to include secondary, technical and higher education for all who have the capacity to benefit therefrom. In this context, the recent advocacy of an increased dependence upon fees and the private provision of schooling is, at first sight, puzzling.

The fact is, however, that in a great many countries a mixture of public and private funding of schooling presently exists. Private schools and colleges are common - both in the forms of highly resourced, elite institutions, and as second chance establishments for those who failed to gain or maintain access to the public system. The equity implications of these kinds of parallel system are usually negative: if private schools are high quality relative to the public sector they tend to foster easy access to elite status; and if they are the reverse they tend not to offer social mobility for those who utilise them. Within the public sector, fees are fairly frequently charged, albeit not usually fully cost-covering, and often declining as a proportion of unit

costs at higher schooling levels. This tends to have perverse equity and efficiency consequences in view of the small proportions and higher income characteristics of the population enrolled at upper secondary and tertiary levels.

The complexity of these circumstances belies the apparent simplicity of the UN case. Although arguments are made in defence of the greater efficiency of private schools in Colombia, Tanzania, Thailand and elsewhere in the developing world (Jimenez et al. 1988; Psacharopoulos 1987), the evidence remains weak, and at present appears dwarfed by the likely dimensions of their associated equity costs. Nevertheless the case for restructuring the existing balance of private provision and fee incidence in ways which improve equity and efficiency at no (or negative) net cost to the state is considerably stronger. This, to use the jargon of economics, is a type of 'second best' solution, which is cognizant of the need for financial stringency (or for the achievement of net savings) in the public sector.

In this context the introduction of cost-recovery measures at higher levels of education - particularly if they allowed fee reductions at school-level - could have positive equity and efficiency consequences. Additional resources for the expansion of primary schooling could be generated, and the public subsidies to higher education, which at present mainly benefit the richer groups, would thereby be reduced. It would, of course, be necessary to ensure that the introduction of such fees did not reduce private returns to levels which led to absolute declines in tertiary enrolments. This would be a danger in some Sub-Saharan countries at the present time (Colclough 1989). Equally, such changes are regressive to the extent that they prevent bright children from low income households from continuing to pursue their studies. This problem is accepted by most advocates of charges, who seek mitigation of these costs - particularly at tertiary level - by the introduction of loans and/or scholarships in order to remove the bias against the poor.

Loans and scholarships

In principle, at least, loans schemes tackle both the problems of equity and of resource generation very subtly. By shifting the costs of tertiary education to the direct beneficiaries, and by financing them out of future rather than present income, a desirable wedge is opened up between eligibility to attend and the present ability to pay. This would reduce the future net benefits of tertiary education, and, by providing machinery with which poor bright children can meet the present direct financial costs, both static and intergenerational equity would seem to be promoted by such a scheme.

Student loans schemes are widely used in Latin America and the Caribbean (29 countries), but they are not common elsewhere. Ghana, Tanzania and Nigeria have experimented with loans to finance university students, and a new loans scheme was introduced in Zambia, early in 1989. These countries remain exceptions outside Latin America. In practice, experience suggests that loans schemes confront a range of practical difficulties. They tend not to become self-financing, owing to high default rates on repayment, unemployment or abstention from the labour market, and high administrative costs (Woodhall 1983). Equally they do not provide a quick source of additional public revenue owing to the length of time needed for repayments to build up. Moreover, although loans schemes provide equity benefits in comparison with the net effects of user charges, there are, of course, net equity costs in comparison with the present typical structure of subsidies. Since, under the present system of fee-free higher education, the poor, typically do not enrol, student loans could only exacerbate this pattern. Thus, any net increase in the costs of tertiary attendance will cause the de facto inequities of access to increase further rather than the reverse. Since loans involve higher perceived and actual personal costs than grants, far from their providing an escape whereby the pro-equity effects of user charges can be captured, they rather appear to be an instrument whereby the present inequities of access to and provision of higher education - and possibly lower levels also - would be further entrenched.

The only escape from this consequence would be to provide scholarships to promote access for the poor to higher levels of education, but this obviously further undermines the revenue raising objectives of user fees. Is it then not possible to secure both revenue raising and equity promoting objectives at once?

Expanding the tax net

The traditional response to this dilemma would be to reassert a separation between the financing of and the determination of access to publicly provided services. This is partly - though by no means wholly - achieved via the fees, loans and scholarships approach. A more thoroughgoing option is, of course, offered by the general tax system. Here there are a number of difficulties for low income and adjusting countries. First it is widely believed that many countries in this category are approaching the limits of their taxable capacity. Incentives within the formal sector have been heavily undermined by the reduction of personal incomes associated with devaluation and other adjustment measures. The critical issue in many public sectors is how to raise disposable incomes so as to improve motivation and productivity at work rather than to contribute to their further decline via increasing marginal rates of tax. Equally, the need to restore lost output (value if not physical quantity thereof) cannot be addressed without restoring profitability. Measures to increase company taxation are, therefore, inauspicious in the present environment.

These points have substance. But countries are by no means equally affected. In some there remains scope for increases in tax (probably in the context of wider fiscal reforms), and such opportunities need to be investigated on a country-by-country basis. (In any event, to use these circumstances as arguments for cost-recovery via user fees is dangerous, since success with the latter would provide <u>prima facie</u> evidence for the existence of additional taxable capacity).

A second argument frequently cited against further dependence upon general taxation is that such systems are typically regressive.

Yet this implies the need for advocacy of differential, rather than equal changes in marginal rates, rather than that this instrument should be completely ignored. Finally the argument that additional public revenues from general taxation would be used either to reduce public deficits (i.e. would not be spent) or to expand non-educational services (or pay off debt) is not decisive: it seems equally likely that, in response to higher revenues accruing from user fees, public expenditures on education would be compensatorily reduced. The political likelihood of either of these two sets of outcomes may not be significantly different in many low income and adjusting countries. The total resources required to provide education for all in these countries are large. Increases in the tax base, and in the progressivity of the tax system will have to play a vital part in raising these resources in a good number of countries in this group.

New fiscal instruments

The design of new fiscal instruments for the purposes of raising additional educational finance has been largely ignored in the relevant literature. In this context a promising alternative to user fees and student loans schemes would be a payroll tax, levied upon employers, related to their employment of (or wage payments to) graduates from designated educational programmes. Payroll taxes have in fact been used in a number of countries as a means of financing vocational training. These have been broadly of two types. First, levy-grant schemes have been established in Ivory Coast, Kenya, Fiji, Singapore, Taiwan and Tunisia. Typically the schemes tax employers in the private sector at rates varying between one and two per cent of their wage/salary bill. Rebates and grants can be claimed by firms undertaking 'approved' training of their own employees. Of more interest for present purposes are revenue raising schemes where tax revenues (again, usually derived from taxes in the range of 1-2 per cent of wage and salary costs) are earmarked to finance training provided by the state. Such a scheme was first introduced in Brazil in the early 1940s, and they are still mainly operative in Latin America, where 14 countries have introduced them. In Sub-Saharan Africa, Zimbabwe has a well-established scheme. These have raised substantial revenues which

have been used to build up national training systems, often providing a wide range of pre-employment training courses (a recent review of such schemes is provided by Whalley and Ziderman, 1989).

Arrangements such as these have not yet been used to finance educational (as opposed to training) programmes. Yet there are no decisive reasons to suggest that they would be inappropriate for those purposes. A recent analysis of a payroll tax levied on the wage bill for university graduate employees suggests that it would be superior to a student loans scheme as a means of raising additional educational finance in a number of important ways (Colclough 1990). The costs of the tax initially fall entirely on private employers, but they result in downward pressure upon graduate wages over the medium run. This, together with associated employment effects would be useful in countries where university graduates remain in short supply, and where scarcity rents have been excessive. More significantly, there would be none of the equity costs associated with user fees or student loan schemes: although graduates do pay part of the cost of the tax via lower wages and employment (depending, in fact, upon the relevant demand elasticities in the skill markets for graduates) they are not actually aware of so doing. Thus, the disincentive effects of fees and loans for the progeny of poorer households are avoided. Finally, the revenue generating potential of a payroll tax is greater than that of a student loans scheme: its financial impact is not heavily lagged, and for governments with high rates of time preference (as in low income and heavily indebted countries) it would usually prove to be a superior instrument on financial grounds. More work on this proposal is needed in a range of countries. But initial calculations for Botswana and Zambia suggest that the net additional revenues which could be generated by a modest graduate payroll tax (of the order of 10 per cent) would be equivalent to between 5 and 10 per cent of the recurrent costs of primary schooling. This, then, represents a useful potential source of resources for primary-level expansion.

Community financing

A large number of countries have experimented with ways of passing some schooling costs to local communities. Rooted in traditions of self-help, such initiatives can often mobilise resources which otherwise would remain underutilised, and they can engender the further commitment of parents (in terms of both time and interest) to the schooling of their children. The most usual form of such community financing is the provision of labour and local materials, thereby to reduce the capital costs of school provision or expansion. There are examples, however, of teachers' salaries being paid partially or entirely by the community which they serve, and of school books and equipment - over and above some centrally provided minima - being similarly financed.

Although appealing from the perspective of central government, such schemes have a number of associated problems. Firstly, the full costs of community financing are rarely acknowledged or measured. There is a tendency to believe that labour provided by villagers has little or no associated opportunity cost. Yet unless great care is taken in the mobilisation of such labour (including the timing vis-à-vis other demands) there will almost certainly be a cost in lost agricultural, or other, output, which it is wrong to ignore.

Secondly, passing schooling costs to the community is only slightly less inequitable than is passing them to the individual household via user fees. It can result in a highly differentiated school structure which closely reflects the relative prosperity of different communities and geographical areas.

Nevertheless, the devolution of responsibility for some aspects of schooling provision is less damaging than others. In general the provision of those aspects of the infrastructure, the quality of which are <u>not</u> likely to be causally associated with cognitive outcomes (some buildings, latrines, sports facilities) is less risky and inequitable than the devolution of responsibility for other items (teachers' salaries - and thus the proportion of teachers trained/untrained - school text-books and other learning materials) which <u>are</u> so associated.

Thus, provided such approaches are used with care, some subsidy to the education budget can be provided by local communities without surrendering too much equity in the process. The costs should nevertheless be recognised. Although such services may be free goods from the perspective of the Ministry of Education, they are not free from that of the Ministry of Finance (output/exports/ taxes foregone), still less so from that of society as a whole.

4. Estimating the Cost-Impact of Educational Reforms

From the foregoing analysis the most promising sets of reforms - in terms of maximising the release of resources and enhancing quality - appear to consist of a mixture of reducing repetition and increasing promotion (coupled with necessary curricula changes); utilising community resources more fully for classroom building and recurrent support; replacing boarding where feasible; increasing double shift schooling; selectively increasing class size; limited and selective introduction of cost recovery at tertiary level; reducing drop-out; increasing learning resources; and allowing moderate increases in teachers' salaries.

The critical question is whether, singly or in combination, these kinds of reforms can lead to SFA in the majority of countries considered in this paper (Table 1), or whether additional resources would be needed. To address this question we have developed a simulation model[8] to show the impact on expenditure of different paths to SFA, defined as the achievement of a GER of 100 in 1990/2000. This falls short of enroling all children at this point since a proportion of places will still be occupied by repeaters and over-age entrants. It represents the case where there are sufficient school places for all 6-11 year olds to be enrolled.

The model simulates an education system comprising six years of primary education, six years of secondary, and a three year cycle of teacher training starting after grade 9. Higher education is

8. The model on which these variants are based was developed by UNESCO. For further technical information see UNESCO BAD/PSA "Presentation of SIMEDUC, Simulation Model for Educational Development", UNESCO, Paris. February 1990.

exogenous in terms of enrolments but utilises a constant 20% of public resources for education. It is assumed that 14% of government expenditure is allocated to education in 1989/90 and that government expenditure grows at the same rate as the population growth rate.

The model has three baseline variants which simulate different types of education system and which broadly reflect the circumstances of countries embarking on SFA policies. These have been constructed using UNESCO and World bank data to generate population weighted means for key parameters. The first, Simulation A, has a gross enrolment ratio (GER) for 6-11 year olds of 50 (the weighted mean of countries with GERs of less than 60); the second, Simulation B, has a GER of 75 (the weighted mean GER for Sub-Saharan Africa and, coincidentally, the weighted mean for countries with GERs between 60 and 90); the third, Simulation C, has a GER of 80 (the weighted mean for all low and lower-middle income countries). In the first two cases the population growth rate has been taken as 3.2% and in the third 2.0%. These figures are also derived from weighted means. The basic assumptions of the model are detailed in Table 3. More details are provided in the Technical Appendix.

Each simulation explores the cost-impact of introducing sequentially nine separate types of reform. Their details are shown in Table 4. The reforms chosen are those identified as promising in our earlier analysis. Broadly speaking they can be grouped into those that decrease the costs to government of achieving SFA by reducing unit costs (levels 1-4), and by sharing some costs with the community (levels 5 and 6), and those that increase costs with some positive impact on school quality (levels 7-9). Before discussing the results of the simulations the following interpretive points may be useful.

The first level of reform explores the effects of reducing repetition and increasing promotion. This reduces the GER achieved in the year 1999/2000 to slightly below 100 as the internal efficiency of the system improves. On average children spend less time reaching the end of primary school, and the costs of primary therefore fall. However, since more children survive

	Primary	Secondary	Teacher training
Promotion rate from previous level (%)		40	20
Repetition rate (%)	14	14	10
Drop-out rate (%)	11	11	5
Continuation rate (%)	75	75	85
Students/class	40	40	30
Teachers/class	1	1.4	1.4
Students/teacher	40	28.6	21.4
Teacher attrition (%)	12	12	12
Unit costs (1989 US$)			
Learning materials per student	1	2	3
Construction costs per class	2500	6500	8000
Case A and B			
Teachers' salaries per student	30.83	64.98	77.48
Total unit costs	40.69	114.53	159.95
Case C			
Teachers' salaries per student	40.54	81.23	97.48
Total unit costs	51.37	131.70	181.39

Other assumptions

1. Higher education absorbs 20 per cent of total expenditure on education and 20 per cent of total capital investment costs in education.

2. Education as a whole absorbs 14 per cent of total public expenditure.

3. In case 1 and 2 population grows at 3.2 per cent per annum; in case 3 at 2.0 per cent annum.

4. There is no double shifting.

5. There is no boarding at primary level; 15 per cent of secondary students are boarding; 25 per cent of teacher training students are boarding.

6. There is no private primary provision; 5 per cent of secondary students are enroled in private schools; no teacher training is private.

7. Primary entry as percentage of 6 year old age group has three baseline levels:

	%
Case A	59
Case B	88
Case C	94

TABLE 4: SCHEDULE OF REFORMS APPLIED TO THE MODELS

REFORM LEVEL	REFORM		VALUE 1989/90	VALUE 1994/5	VALUE 1999/2000
1	REDUCE REPETITION		14%	10%	6%
	INCREASE PROMOTION		75%	79%	83%
	KEEP DROP OUT CONSTANT		11%	11%	11%
2	REDUCE % BOARDING SECONDARY		15%	7.5%	7.5%
	TEACHER TRAINING		25%	12.5%	12.5%
	RECOVER 50% OF PRIMARY CLASSROOM COSTS				
	COST/CLASSROOM US$		2500	1250	1250
3	INTRODUCE DOUBLE SHIFTING				
	% DOUBLE SHIFTING	PRIMARY	0	20%	20%
		SECONDARY	0	20%	20%
4	ALLOW CLASS SIZE INCREASES				
		PRIMARY	40	45	45
		SECONDARY	40	45	45
		TEACHER TRAINING	30	35	35
5	ALLOW GROWTH IN COMMUNITY FINANCED SCHOOLPLACES				
	% FINANCED[1]	PRIMARY	0	5	10
		SECONDARY	5	10	15
6	REDUCE HIGHER EDUCATION SUBSIDY[2]				
	% SUBSIDY	CASE A AND B	100	85	73
		CASE C	100	91	82
7	REDUCE DROPOUT, PRIMARY AND SECONDARY[3]		11%	9%	7%
	INCREASE PROMOTION PRIMARY AND SECONDARY		75%	81%	87%
8	INCREASE LEARNING RESOURCES/STUDENT US($)				
		PRIMARY	1	5	5
		SECONDARY	2	5	5
		TEACHER TRAINING	3	5	5
9	INCREASE TEACHERS SALARIES (% INCREASE OVER 5 YEAR PERIODS)		← 7.5% →	← 7.5% →	

Notes

[1] The model assumes 20% of community financed unit costs are subsidised by public expenditure.

[2] Higher education subsidy is reduced from 100% in the base year, assuming progressive recovery of costs from other sources. Higher education enrolments projected to grow at the rate of population growth.

[3] Repetition rates the same as in reform level 1.

49b

primary and are promoted into secondary school (the transition rate has been kept constant) secondary costs increase. Level 1 reforms thus result in only a small net saving but greater efficiency.

Reform levels 2 to 4 each decrease unit costs. Levels 5 and 6 however pass costs from government to households. Each increase the total number of places available for a particular level of government expenditure. In the case of the freezing of public subsidies to higher education (level 6),the resulting savings are used to finance additional primary and secondary places. Level 7 Reforms increase total costs since they reduce drop-outs, thereby increasing the number of students progressing through the system. The GER in 1999/2000 rises as a result representing an additional gain, although unit costs here remain unchanged. The remaining reform levels - increasing learning resources to $5US per child and improving teachers' salaries - are costly, but are expected to have a positive impact on school quality.

The Results of the Simulations

Tables 5,6 and 7 summarise some of the more important results of the simulations. These show changes in enrolment, changes in the Gross Enrolment Ratio, the evolution of unit costs, levels of investment and recurrent expenditure, growth in resources and levels of total expenditure associated with the move to SFA, and the introduction of each level of reform.

Our projections show that as regards the most educationally disadvantaged countries (Simulation A, GER of 50 in 1989/90 shwon in Table 5), the move to SFA would imply an increase in current enrolments by a factor of 2.73 which with no reforms would increase expenditures by a factor of about 2.11. This would only be achievable if the proportion of public expenditure allocated to education increased from 14% to 21.6% over the decade, representing a 54% increase over current levels (since the simulation is a growth model the required proportionate increase would be the same whatever the initial level of budgetary provision).

TABLE 5: CASE A - SIMULATED COSTS OF SCHOOLING FOR ALL IN HYPOTHETICAL COUNTRY TYPICAL OF THOSE WITH A GROSS ENROLMENT RATIO OF LESS THAN 60

			Projected position in 1999/2000[1]								
				Reform level[2]							
		BASE[3] 1989/90	SFA 1999/2000	1	2	3	4	5	6	7	8	9
1	PRIMARY ENROLMENTS[4] (Grade 1-6) 1989/90 = 100	100	273	266	266	266	266	266	266	290	290	290
2	GROSS ENROLMENT RATIO[5] (6-11)%	50.3	100.4	97.7	97.7	97.7	97.7	97.7	97.7	106.6	106.6	106.6
3	UNIT COSTS (US $)[6]											
3.1	Primary	41	41	41	41	35	33	31	31	31	34	39
3.2	Secondary	115	115	115	109	99	93	86	86	86	89	101
3.3	Teacher training	160	160	160	147	147	136	136	136	136	138	156
4	EXPENDITURE (US $ mn)											
4.1	Primary (investment)[7]	11	21	17	8	7	6	6	6	9	9	9
4.2	Total (investment)[8]	17	48	48	40	34	30	30	30	43	43	43
4.3	Primary (recurrent)[9]	113	308	300	300	262	241	226	226	247	277	314
4.4	Total (recurrent)[10]	232	490	489	483	434	406	385	368	408	441	494
5	RESOURCES (US $ mn)											
5.1	Total (recurrent)[11]	232	318	318	318	318	318	318	318	318	318	318
5.2	GAP[12]	-	172	171	164	116	88	67	50	90	123	176
5.3	% of total recurrent public resources needed[13]	14.0	21.6	21.5	21.2	19.1	17.9	16.9	16.2	17.9	19.4	21.7
5.4	% change in % of resources allocated to education[14]		54.3	53.6	51.4	36.4	27.9	20.7	15.7	27.9	38.6	55.0

TABLE 6: CASE B - SIMULATED COSTS OF SCHOOLING FOR ALL IN HYPOTHETICAL COUNTRY TYPICAL OF THOSE WITH A GROSS ENROLMENT RATIO BETWEEN 60 AND 90 AND OF COUNTRIES IN SUB-SAHARAN AFRICA

			Projected position in 1999/2000[1]								
				Reform level[2] →							
		BASE[3] 1989/90	SFA 1999/2000	1	2	3	4	5	6	7	8	9
1	PRIMARY ENROLMENTS[4] (Grade 1-6) 1989/90 = 100	100	182	177	177	177	177	177	177	193	193	193
2	GROSS ENROLMENT RATIO[5] (6-11)%	75.0	99.8	96.8	96.8	96.8	96.8	96.8	96.8	105.6	105.6	105.6
3	UNIT COSTS (US $)[6]											
3.1	Primary	41	41	41	41	35	33	31	31	31	34	39
3.2	Secondary	115	115	115	109	99	93	86	86	86	89	101
3.3	Teacher training	160	160	160	147	147	136	136	136	136	138	156
4	EXPENDITURE (US $ mn)											
4.1	Primary (investment)[7]	12	18	14	7	6	5	5	5	8	8	8
4.2	Total (investment)[8]	16	23	39	32	27	25	25	24	37	37	27
4.3	Primary (recurrent)[9]	168	307	297	297	259	238	224	224	244	274	311
4.4	Total (recurrent)[10]	346	560	559	550	498	469	446	420	466	500	558
5	RESOURCES (US $ mn)											
5.1	Total (recurrent)[11]	346	474	474	474	474	474	474	474	474	474	474
5.2	GAP[12]	-	86	85	76	24	-5	-28	-54	-8	26	84
5.3	% of total recurrent public resources needed[13]	14.0	16.5	16.5	16.2	14.7	13.8	13.2	12.4	13.8	14.8	16.5
5.4	% change in % of resources allocated to education[14]		17.9	17.9	15.7	5.0	-1.4	-5.7	-11.4	-1.4	5.7	17.9

TABLE 7: CASE C - SIMULATED COSTS OF SCHOOLING FOR ALL IN HYPOTHETICAL COUNTRY TYPICAL OF THOSE IN LOW AND LOWER-MIDDLE INCOME GROUPS.

			Projected position in 1999/2000[1]								
				Reform level[2]							
		BASE[3] 1989/90	SFA 1999/2000	1	2	3	4	5	6	7	8	9
1	PRIMARY ENROLMENTS[4] (Grade 1-6) 1989/90 = 100	100	152	147	147	147	147	147	147	161	161	161
2	GROSS ENROLMENT RATIO[5] (6-11)%	80.2	100.0	96.8	96.8	96.8	96.8	96.8	96.8	105.8	105.8	105.8
3	UNIT COSTS (US $)[6]											
3.1	Primary	51	51	51	51	44	41	38	38	38	42	48
3.2	Secondary	132	132	132	126	113	106	98	98	98	101	115
3.3	Teacher training	181	181	181	169	169	155	155	155	155	157	178
4	EXPENDITURE (US $ mn)											
4.1	Primary (investment)[7]	6	11	8	4	3	3	3	3	5	5	5
4.2	Total (investment)[8]	12	25	25	21	18	16	16	16	28	28	28
4.3	Primary (recurrent)[9]	234	355	344	344	298	273	256	256	280	308	350
4.4	Total (recurrent)[10]	479	663	659	650	587	550	524	503	557	589	656
5	RESOURCES (US $ mn)											
5.1	Total (recurrent)[11]	479	583	583	583	583	583	583	583	583	583	583
5.2	GAP[12]	-	80	76	67	4	-33	-59	-80	-26	6	73
5.3	% of total recurrent public resources needed[13]	14.0	15.9	15.8	15.6	14.1	13.2	12.6	12.1	13.4	14.1	15.7
5.4	% change in % of resources allocated to education[14]		13.6	12.9	11.4	0.1	-5.7	-10.0	-13.6	-4.3	0.1	12.1

NOTES FOR TABLES 5, 6 AND 7

1. The projected position in 1999/2000 uses the baseline assumptions (Table 3) and projects forward expenditure and resources for each simulation.

2. The reform levels are detailed in Table 4.

3. Base line figures are for 1989/90 and take, as a starting point, equilibrium between expenditure and resources.

4. Primary enrolments project forward the number of children in Grades 1-6 from a baseline of 100 in 1989/90.

5. The Gross Enrolment Ratio (6-11) compares total enrolment Grade 1-6 with the size of the 6-11 year old age group.

6. Unit costs are the total per student cost at each level including all school level salaries, boarding costs, learning material costs, and administration costs at regional and national level.

7. Primary investment expenditure is computed from the number of new classrooms needed at primary level.

8. Total investment costs include primary secondary, teacher training and higher education.

9. Primary recurrent expenditure is computed from growth in enrolments and unit costs.

10. Total recurrent expenditure includes primary secondary, teacher training and higher education.

11. Total recurrent resources are projected on the basis of growth from the base year at the rate of population growth.

12. The resource gap is obtained by subtracting total recurrent resources from total recurrent expenditure.

13. The percentage of total recurrent public resources needed shows, for each level of reforms, the proportion of the total recurrent budget needed to meet total recurrent education expenditures in 1999/2000 assuming that resources grow at the rate of population growth.

14. Shows the proportional change in budgetary provision, as compared with 1989/90.

The simulations for the other two country types (shown in Tables 6 and 7) indicate a smaller but still significant increase in the proportion of total expenditure required for education if SFA were to be achieved.

Figure 4 summarises the relative impact of the reforms on recurrent costs for each of the three simulations. It can be seen that the most cost saving reforms are at levels 3,4 - double shifting, class size. Level 5 and 6 also result in cost saving to the public expenditure budget through an increase and community financing of school places and cost recovery in higher education. Levels 1 and 7 have benefits for internal efficiency. Levels 8 and 9, which increase costs substantially, are likely to be necessary in many systems if other reforms are to take place and school achievement is to be improved. The relative magnitude of the effects of the reforms is similar in all the simulations, though the actual sizes vary as a result of the different baseline assumptions.

An overview of the pattern of enrolment growth, admission rates to the first grade, and the annual costs of SFA with different levels of reform for each simulation is provided by Figures 5 to 19. These show expenditure in terms of a multiple of base year expenditure for successive years and levels of reform. They also include a curve representing the cost of achieving SFA with no reforms and a resource curve indicating how available resources would grow if the public budget increased at the rate of population growth in the simulations.

In summary, the most important implications for SFA that arise from these simulations have four elements. Firstly, in the most educationally disadvantaged case (Simulation A) the total recurrent costs would be more than double over the decade to the year 2000 if SFA were to be achieved. In cases B and C (representative of Sub-Saharan African countries, and of all low and lower-middle income countries respectively) recurrent cost increases attendant upon SFA would be 60 per cent and 38 per cent in each case.

Secondly however, if the expansion of schooling were also to be accompanied by policy reform, the increases in recurrent costs would be changed, sometimes substantially. Figure 7 shows that in the most disadvantaged countries reforms 2,3 and 4 together reduce the shortfall of expenditure over resources to about half the level without reform. Level 5 and 6 reforms reduce costs further but still leave a significant shortfall (Figure 8). Incorporating level 7, 8 and 9 reforms which improve quality bring the total costs back up to their initial level (Figure 9). In this case therefore, the efficiency gains achieved in the earlier reforms would be financing the quality improvement needed in the system.

Thirdly, for those countries furthest away from SFA, a doubling of resources would be difficult to achieve without substantial changes in existing spending priorities. Here prima facie, the achievement of SFA seems unlikely, even with substantial policy reform, if all the resources were to be generated internally.

Fourthly, for those countries with current GERs of 80 or more, and especially where population growth is 2 per cent or less, SFA could potentially be financed from domestic resources given enhanced efficiency, significant but not unrealistic reallocation of resources to education, and plausible economic growth rates.

5. The Costs and Financing of Schooling for All

This paper has shown that a wide range of policy instruments can be used to increase enrolments, reduce costs and protect or enhance the quality of schooling. The simulations presented in the previous section investigated the impact of a particular package of reforms which appear attainable, and - subject to a number of other conditions being satisfied - desirable. In 'typical' country circumstances, it is estimated that the introduction of the two sets of cost-saving and cost-shifting measures would reduce total recurrent costs of the whole education system by up to 25 per cent, an amount also equivalent to about 40 per cent of the recurrent costs of the primary system. These are substantial savings, which can help to finance the move towards SFA, and the further support for teachers and learning materials which is necessary throughout the system, but particularly at primary level.

However, the simulations also suggest - notwithstanding the opportunities presented by these policy reforms - that the extent to which SFA can be financed will vary sharply as between low income countries and those which are somewhat better off. The simulation using parameters typical of the most educationally disadvantaged countries (GER: 50%) indicated that the additional resources needed in order to finance SFA - even with full policy reforms - would require a very substantial increase in the proportion of public spending devoted to education. In practical terms this implies that SFA (of an acceptable quality) would probably not be able to be attained in many countries by the end of the century, in the absence of international support.

Two further major questions naturally follow from this conclusion. First, what will be the likely actual costs of achieving SFA in all countries by the year 2000? Second, what would be the minimum amount of international support required in order for it to be achieved? The remainder of this paper is concerned to arrive at tolerably accurate answers to these questions.

What will it cost? Presented below are estimates of the costs of achieving SFA in developing countries by the end of the century. All low and lower-middle income countries are included, except for China, which had already achieved a GER of 123.5 by 1985. Since the growth of the relevant age cohort to the year 2000 is expected to be less than 1 per cent per annum, SFA could be achieved in China with no real increase in primary-level spending. Instead, a reduction in over-age enrollments would be needed. Upper-middle income countries are also excluded from the calculations, both because most already have GERs greater than 100, and could accommodate future population growth without expanding the present size of the primary system, and because a number of European countries fall within this income group having high enrollments and very high unit costs.[9]

---

9. Seven countries in the upper-middle income group are usually classified as 'developing'. They comprise Brazil, Malaysia, Mexico, Argentina, Venezuela, Iran and Iraq. Rough calculations for these countries indicate that they would be able to achieve SFA at a total additional cost, by the year 2000, of less than US$1 billion. Their exclusion therefore does not seriously

The costs of SFA are definitionally equal to the product of average unit costs and the number of additional pupils who would need to be enrolled in order to achieve it. Table 8 provides a simple quantification of this relationship. Unit costs (1985 prices) are shown for low and lower-middle income country groups, weighted by primary enrolments in the same year in each individual country. Note that unit costs in the latter group are almost three times those of the former. Estimates of total primary school enrolments for 1990 are also shown, assuming that gross enrolment ratios for each group of countries remained at their levels of 1985. These parameters are used in order to derive the increased enrolments to 2000 which would result if places for all primary school-aged children were to be provided by that date, and to estimate the additional costs which would be thus implied.

The assumptions of unchanged values for the GER and for levels of unit costs between 1985 and 1990 would, under normal circumstances, be judged unrealistic. However those years were not 'normal'. The widespread reductions in public expenditures per teacher and per student which occurred between 1980 and 1985 have been documented earlier in the paper. The continued currency depreciation and reductions in public expenditure in many lower income countries imply that these trends continued over 1985-90. For similar reasons, improvements in gross enrolment ratios will also have been patchy in developing countries. Table 1 showed that in 17 of the 35 educationally disadvantaged countries (i.e. half of the cases) the GER either fell or showed no significant change over 1980-85. Data for the years to 1990 are expected to reveal a similar trend. For these reasons the assumptions of no change between 1985 and 1990 either in the levels of unit costs or in average GERs are not believed to be unrealistic. There is certainly no firm basis upon which clearly superior assumptions could be made.

Using the above methodology then, the table indicates that the cumulated additional cost of achieving SFA would amount to some $27 billions in low income countries, and $10 billions in lower-

---

affect the dimensions of the cost estimates for achieving SFA in developing countries shown below.

Table 8

Population and enrolments (in thousands), and total additional costs of schooling for all in developing countries, 1985-2000
(Minimum Estimates - for Primary System only)

	1985	1990	2000	Unit costs US $ 1985[c]	Total additional costs 1990/2000 US $ billion[d]
Low income[a]					
Population 6-11 yrs	213539	235305	285720		
Primary enrolments	153083	168714[b]	285720	29	27.455
GER	71.7	71.7	100.0		
Lower-middle income					
Population 6-11 yrs	105769	115175	136570		
Primary enrolments	104405	113678[b]	136570	81	9.918
GER	98.7	98.7	100.0		
Total[a]					
Population 6-11 yrs	319308	350480	422290	50	37.373[e]
Primary enrolments	257488	282487[b]	422290		
GER	80.6	80.6	100.0		

Notes a. Excluding China. 38 low income and 34 lower-middle income countries included, with per capita incomes less than $500 and $2000, respectively, in 1985.
b. Estimate, assumes no change in GER 1985-90, for each income group.
c. Weighted according to primary enrolments in 1985 in each country.
d. The sum of the annual additional costs of SFA 1991-2000, assuming a constant rate of growth of expenditures over the decade, in comparison with expenditure in 1990. Calculations based on unit costs and enrolment data shown elsewhere in table.
e. Sum of column totals rather than result of separate calculation.

Source: Calculations based upon data in Lockheed et al. 1989, Tables 1, 2 and 20.

middle income countries. Total additional costs, on these assumptions, would thus amount to some $37 billions between 1990 and 2000.

These estimates, however, have a number of limitations. Firstly they are minimum estimates for the additional costs of SFA because they ignore the implications that the expansion of primary schooling brings for necessary expansion elsewhere in the system. On the one hand, it would be extremely unusual for the continuation rate from primary to secondary schools to fall by the full extent of the primary expansion. Pressures from parents to expand secondary schooling would grow as it became clear that failure rates at 6th grade began to rise. Indeed a conservative assumption, judging by the lessons of history, would be that continuation rates at all levels of the system would remain constant. On the other hand, the expansion of primary schooling carries direct and immediate implications for the expansion of teacher training, the costs of which are also not included in the primary unit costs estimates shown in Table 8. For these reasons, the movement towards SFA will increase total costs, not only at primary level, but at secondary and tertiary levels as well. Thus, the estimates shown in Table 8 exclude an important element of the additional resources required to reach SFA.

Secondly, and more fundamentally, the calculations in the Table assume that average and marginal costs will remain the same during the move towards SFA, and that no changes in the parameters which determine unit recurrent costs will meanwhile occur. These latter assumptions therefore ignore the major analytic theme of this paper: unit costs can and do change; their deliberate manipulation is likely to be important in determining whether or not many countries achieve SFA.

These two sets of limitations can, however, be avoided by the use of the simulation approach. As indicated in the previous section of this paper, the second and third of our simulated cases use enrolment and cost data based upon reported weighted means for Sub-Saharan African countries and for all low and lower-middle income countries respectively (see Table 3). The actual cost-estimates produced by the simulated cases can thus be grossed-up,

using a target for primary enrolments in the year 2000 of 100 per cent of the projected primary age-cohort in each of these regions, to produce actual costs of achieving SFA.

Two points should be borne in mind at the outset. First, the cost estimates are rough, in the sense that they utilise the weighted means of country-level parameters. Distortions will thus be present, depending upon the variance associated with each parameter and its distribution amongst small and large countries. Secondly the estimates of costs will tend to be conservative, owing to the fact that the size of our simulated education system is small: technical and vocational education are not included; no allowance is made for the usually higher unit costs of secondary teacher training; university provision increases at the same rate as population growth, rather than the higher rates of expansion of primary and secondary schooling implied by the move to SFA. This method therefore underestimates total actual expenditure upon education in each of the country groups. But it does provide a reasonable estimate for the additional costs of primary level expansion and their likely minimum cost-impact upon the higher levels of the system.

The resulting cost estimates are shown in Table 9, for the 72 low and lower-middle income countries as a group (excluding China), and for the sub-set of 39 countries of Sub-Saharan Africa (excluding South Africa and Namibia) separately. The table shows the cumulated additional recurrent costs and the increased annual costs of achieving schooling for all by the end of the century, in each of the country groups. The lower part of the table examines potential ways in which these costs can be met. First, however, we shall examine the implications of the cost estimates.

Our calculations suggest that the total additional costs of achieving schooling for all by the year 2000 should - if the parameters determining unit costs remain unchanged - amount to $58 billion in constant 1990 prices. This estimate is directly comparable with that for $37 billion shown in Table 8.[10] It

10. The cumulated additional cost estimate for primary expansion alone which is generated by our model is $38 billion. This

Table 9

Schooling for all children by the year 2000:
public sector costs and alternative means of financing ($bn constant 1990)

	Sub-Saharan Africa			All low and lower-middle income countries		
	Cumulative additional recurrent costs and revenues 1990-2000 $bn	Increase in annual recurrent costs/ revenues 1990-2000 $bn	%	Cumulative additional recurrent costs and revenues 1990-2000 $bn	Increase in annual recurrent costs/ revenues 1990-2000 $bn	%
Additional costs[a]						
Expansion of system to achieve SFA	17	3.3	62	58	11.1	38
Cost-saving reforms:						
Reduction of repetition and boarding	-1	-0.2	-3	-6	-0.6	-2
Increased frequency of double shift	-6	-0.8	-15	-28	-3.8	-13
Increased class size	-3	-0.4	-8	-15	-2.3	-8
Cost-shifting reforms:						
Increased frequency of community schools	-1	-0.4	-7	-7	-1.8	-6
Introduction of fees at tertiary level	-2	-0.4	-8	-6	-1.2	-4
Quality improvements:						
Reduction in rates of drop-out	3	0.8	14	13	3.2	11
Improved learning materials	3	0.5	10	14	2.0	7
Increased teachers' salaries	4	0.9	16	20	4.1	14
Total costs (Expansion plus reforms)	14	3.3	61	43	10.8	37
Additional revenues						
General taxation[b]	5	2.0	37	34	6.4	22
Shifts from military[c]	4	0.9	17	24	3.2	11
Balance at regional level if reforms and revenues are achieved [d] (+/- regional surplus/deficit)	-5	-0.4		+15	-1.2	
External funding required						
Enabling fund 1990-2000 $bn[e]	7-10			10-13		
Debt-service relief from 2000 (p.a.) $bn		0-0.5			0-1.5	

Notes a. The precise definition of each level of reform is as shown in Table 4.
b. Assumes tax revenue as a percentage of GNP remains unchanged 1990-2000, and that GNP grows at the same rate of growth as the population.
c. Assumes military expenditures in real terms grow at half the rate of growth of population, giving a 15 per cent per capita reduction in SSA, and 10 per cent per capita reduction in all low and lower-middle income countries over 1990-2000.
d. Sums of national surpluses and deficits.
e. Estimated sums of national deficits only (for interpretation, see text).

Source: Calculated from computer simulations of costs of SFA.

BEST COPY AVAILABLE

indicates that approaches which consider the cost impact of expansion upon the primary system alone probably underestimate the total additional costs so generated by more than 50 per cent. The table also indicates that the implementation of the full package of cost-saving, cost-shifting and quality-improving reforms which we have identified would reduce the cumulated additional costs by some 25 per cent to $43 billion. In each case about one-third of these additional costs would be incurred in Sub-Saharan Africa.

The table allows the absolute cost impact of each type of reform to be compared. The impact of double shift teaching and of increases in class size are very large - well over half of the cumulated additional costs could be met in these ways. On the other hand the costs of improvements to the quality of schooling - upon which the success of the cost-saving measures would probably depend - are also high: larger (but still minimal) expenditures on learning materials and higher teachers' salaries (by 15 per cent over 10 years) would absorb about four-fifths of the cost-savings arising from increases in the incidence of double-shift teaching and in class size. Thus, the costs of the needed improvements to the quality of schooling would, in effect, be paid for by the efficiency reforms.

The table also shows the impact of each of these changes upon the annual recurrent costs of the school system in the year 2000 in comparison with 10 years earlier. Both the absolute and proportional increases in costs - together with the impact of each of the reforms - are shown. It should be noticed that the impact of the complete reform package upon net annual cost reduction is much less than the cumulated cost figures discussed above would suggest. In fact, the projected expenditures for the year 2000 indicate that the implementation of all suggested reforms would reduce annual recurrent costs (as compared with the no reform case) only marginally. The reason for this is that the cumulated additional costs are influenced by the speed with which reforms are introduced, with respect to the build up of total enrolments.

---

provides a useful check for the consistency of the two approaches.

Different implementation strategies would thus be capable of influencing the total cost picture in different ways. Finally the much greater impact of achieving SFA on Sub-Saharan African annual costs should be noted (62 per cent as compared with 38 per cent for all low and lower middle income countries). This reflects the more educationally disadvantaged position of Sub-Saharan Africa at the present time, together with its higher projected rate of population growth to the end of the century.

How can these costs be financed?

The question as to whether these costs will be able to be met by developing countries themselves or whether they will need international support to help them be met, is critically important, but difficult to address. In principle it depends, for each individual country, upon the rate of economic growth achieved ad interim, upon the proportion of total income represented by public expenditure, and, within that, upon the proportion of total spending devoted to education, particularly to primary schooling.

The calculations for total tax revenue available for education shown in Table 9, assume that it will be such as to allow real educational spending per person to remain constant over the next decade. This, in turn, is consistent with the assumptions that per capita income, government expenditure as a proportion of GNP and the relative importance attached to educational spending by the government each remain constant. These assumptions are optimistic for Sub-Saharan Africa, and mildly pessimistic for all low and lower-middle income countries taken together.

Also shown in the lower part of the table are resources which would be additionally available if some military expenditures were diverted towards educational purposes. The calculations indicate the resources freed by savings from military budgets if they were to grow, in real terms, at half the projected rate of population growth over the decade. This would result in a continued growth in total real military spending, but a fall in spending per capita of some 15 per cent in SSA and some 10 per cent in all low and lower-middle income economies by the end of the century. This is

not, of course, to imply that further per capita cuts in military spending are either undesirable or unlikely in the current international climate. To they extent they occur, however, other sectors besides education will also be competing for the resulting resources. Thus, reallocation towards primary schooling of the equivalent of 10 to 15 per cent of 1990 levels of military spending is not a modest target.

Levels of international support required

The potential sources of domestic revenues for educational purposes are identified in order to estimate the extent to which external assistance will be necessary if developing countries are to achieve schooling for all children by the end of the decade.

The estimates shown in Table 9 for all 72 countries taken together seem, initially, to suggest that the problem of providing schooling for all could be largely met from increased resource availability within the developing countries themselves. On the assumptions mentioned above, tax revenues ought to be able to generate $34 billion of the $43 billion additional cumulative costs of SFA which would be incurred if the full reform package were implemented. The gap of $9 billion could be more than bridged by the 10 per cent reduction in per capita defence expenditures over the decade. Although these amounts are greater than the total additional costs of SFA (with reforms) for all countries taken together, they do not necessarily imply that SFA will be able to be financed at the level of each individual country, since national 'surpluses' will not be available to finance schooling in deficit country cases. Thus, if at the regional level, no financing gap is revealed, this merely means that the sum of national-level surpluses and deficits counterbalance each other. This result would be consistent with external support being needed on a considerable scale for a good number of countries, depending upon the size of the financial surpluses in the remainder of the group.

Strictly, this problem can be properly addressed only by making cost and revenue calculations for every country separately. The true financing gap for all the countries would then be the sum of

all the national deficits; surpluses could be ignored. Owing to constraints of resources and data availability, this solution could not be adopted for each of the 72 low and lower-middle income countries included in our analysis. Nevertheless in the absence of this ideal solution some regional disaggregation has been undertaken. Although this method remains approximate (furnishing estimates for the size of financing gaps which are biased downwards, and thus indicating requirements for external financing which are minimal) its results are instructive. Three regional groupings are identified, which are discussed separately below.

Sub-Saharan Africa

As a region the 39 countries of Sub-Saharan Africa (excluding South Africa and Namibia) are, amongst all low and middle-income countries, singularly disadvantaged. The great majority presently fall well short of achieving schooling for all, and their chances of reaching it within the next decade are more remote than elsewhere in the world. Very few of the countries in the region will be able to achieve SFA from domestic resources, and the biases involved in implicitly summing national surpluses and deficits are therefore minimised. The results shown in Table 9 support the following conclusions.

Firstly, an absolute <u>minimum</u> estimate for the total amount of financial aid required from abroad between 1990 and 2000 if schooling for all eligible children is to be possible, would be $5 billion. This would be for recurrent purposes, and would be in addition to existing international support for education in Africa, which at present appears to be running at about $1.5 billion per year.

Secondly, this minimum estimate is subject to some very important and difficult conditions being attained: it would require a continuation of present levels of fiscal support <u>per capita</u> over the decade, which will be difficult in view of the continued pressure to reduce public spending in Africa in both relative and absolute terms. In addition, further revenues would need to be allocated to education by seeking savings from other budgetary

heads. The calculations in Table 9 illustrate the impact of cuts in defence spending per capita by 15 per cent over the decade for these purposes. Finally it is contingent upon the countries of SSA introducing the full package of cost-saving, cost-shifting and quality improving reforms that have been identified in this paper.

Thirdly in the event of real per capita cuts in defence spending being unattainable - which, given the current level of intra-regional conflict is more than possible - then, the level of international support required over the decade would amount to some $9 billion, in the absence of similar savings being found from other budgetary heads.

Fourthly, all of this is contingent upon the recent declines of per capita output and income in SSA being arrested. If this should not occur, and if, by consequence per capita spending on education from domestic resources continued to fall, the size of international transfers required would vary between about $10 billion and $17 billion, depending upon whether some, all or none of the policy reforms were introduced.

Finally, it is, of course, necessary not only to cover the cumulative annual additional costs of achieving SFA to the end of the century, but also to restructure budgets such that it can be afforded thereafter. The former does not guarantee the latter. Indeed Table 9 suggests that in SSA further restructuring of expenditures in addition to those provided by the reduction in per capita defence spending would be needed in order properly to finance SFA in the next century. Further savings either from defence or from other budgetary heads would thus be required. One possible source of such savings would be debt-service payments, where a reduction of about 10 per cent in the real levels of debt-service per capita would be needed over 1990-2000 in order to bridge the financing gap. This could, of course, be achieved if the level of African indebtedness (and the levels of real interest rates) were not to rise further during the 1990s.

In conclusion, and in view of the minimum nature of the estimates for the size of the financing gap in SSA, a realistic target for external support to the sub-continent, to enable each country to

provide schooling for all its primary-aged children, would be $7-10 billion over 1990 to 2000. Up to $0.5 billions of this support per year could usefully be provided as debt-relief, linked to SFA targets in particular countries. These estimates assume in the former case that real per capita income decline in SSA is now arrested, and in the latter case that real per capita debt does not further increase. These magnitudes would represent an increase in the current levels of external support to African education of the order of one-half to two-thirds over the years 1990 to 2000.

South Asia

The countries of South Asia also need to be considered separately. India, Pakistan and Bangladesh, with combined populations of over 1 billion persons, represent more than 40 per cent of the total number of people in all 72 low and lower-middle income developing countries (excluding China). Each of these countries has experienced healthy growth in per capita incomes during the 1980s - particularly so for India and Pakistan. In other respects, however, their economic and educational characteristics differ strongly. Accordingly separate estimates of the costs of achieving SFA in each country have been undertaken, the results of which are reported below.

India is fortunate in already having a GER of around 95. It can be expected to achieve a level in excess of 100 by the turn of the century, financed out of normal budgetary growth, unless a catastrophic fall in recent attained economic growth rates is experienced. This looks unlikely, and, with a population growth rate of less than 2 per cent per year, there is no economic reason why SFA as defined in this paper should not be attained in the fairly near future.[11]

11. A separate calculation based upon achieving in India, a net enrolment ratio of 100 by the year 2000 showed that even this should be possible without reducing average enrolment (from a present level of around 80) if past rates of economic growth continue or if a small reduction in the rate of growth of military expenditures, for the purpose of increased educational financing were introduced.

The other two countries are in a somewhat different situation. Both have very low gross enrolment ratios at present, and thus face major additional costs if SFA is to be achieved over the next ten years. For Pakistan (GER of 47) our calculations suggest that with full policy reforms, constant per capita income, and no change in the present fiscal stance, a financing gap of about $2.5 billion would have arisen by the end of the century if SFA were to be implemented. If, however, economic (and fiscal) growth continues at the same rate as in the recent past, the gap would be narrowed to less than $1 billion. Furthermore, each of these gaps could be financed by the diversion of a small amount of (the currently large) military spending towards education.

In the case of Bangladesh (GER of 60), on the other hand, the financing gap could not be closed in these ways. Here, the costs of creating enough school places for all eligible children by the end of the century are likely to exceed resources available by around $1 billion. This is so even if all policy reforms are introduced, and if the recent growth of output and public revenues is maintained. There is little or no scope for switches in military expenditures, since the latter are already very low. Moreover the proportion of public spending devoted to education (16 per cent) is relatively high. Here then, significant levels of international support will be required.

Although this country-level analysis is preliminary, it also seems that a good part of the annual gap in recurrent financing from 2000 onwards (which is shown in Table 9) is accounted for by Pakistan and Bangladesh (up to $0.5 billion per year). This implies that debt relief measures to help achieve SFA should importantly feature these two countries. In conclusion, we estimate that external support of about $2 billion will be needed between 1990 and 2000 in order to achieve SFA in South Asia. This would initially be split equally between Pakistan and Bangladesh with some reduction being possible for Pakistan if past rapid rates of economic growth continue, or if recent high levels of military spending can be cut back.

Other low and lower-middle income countries

Most of the remaining countries in this group already have GERs greater than 100. They include Indonesia, Philippines, Sri Lanka, Peru, Colombia, Chile, and a range of others. In general these countries should have little difficulty in maintaining SFA. Elsewhere, provided some per capita income growth is achieved, others in this group should be able to attain SFA over the next decade, particularly if policy reforms are introduced. There are some exceptions, however. Afghanistan, the two Yemens, Morocco, Egypt, Papua New Guinea, El Salvador, Guatemala and Jordan (with GERs often substantially lower than 80) are each likely to experience severe difficulty in financing SFA entirely from domestic resources. Here then, external support will be needed, perhaps to the extent of $1 billion, over the next decade.

Conclusion

The total international support required to achieve SFA in the developing world over the decade 1990-2000 will be between $1 billion and $1.3 billion per year. This would be in addition to current levels of support to education in developing countries, and would represent an increase of such aid flows by about 30 per cent. This support would need to be recurrent in nature and should take a number of different forms including relief for debt-service in those highly indebted countries attempting to implement SFA. The greater part of this external support - at least 70 per cent - will be needed for the countries of Sub-Saharan Africa, where it would enhance present aid flows to education by up to two-thirds.

These may seem to be large magnitudes. However, it should be remembered that over the decade to 1987 aid to education fell from 17 per cent to scarcely more than 10 per cent of total concessional flows. This would therefore represent only a modest correction to a sustained downward - and highly undesirable - trend of support for human resources. Equally, although it would secure a school place for each eligible child (given a return to growth in Africa, a willingness to restructure away from the

military, and to implement educational policy reforms) it would provide school quality barely beyond a basic level for many countries - particularly those in SSA.

The years 1989 and 1990 have been characterised by bold and imaginative steps in world affairs. This is a time of great hope and optimism for peace in the North, and for the financial savings and human freedoms which that would bring. Meanwhile in the South, one set of great human freedoms - that delivered by access to education - is at present denied to about one hundred and fifty million children of primary school age. This paper has argued that a minimum combination of reforms to educational policy in developing countries, some switching of expenditures towards schooling and away from the military, and transfers of little more than $1 billion per year from northern countries are needed to provide schooling for all of the world's children. This, surely, is an economic challenge which can and should be met, and provides one of the finest human targets for the closing decade of the twentieth century.

TECHNICAL APPENDIX

The Model

The model projects future enrolments from the base year over 5-year periods. Input parameters can be varied for the base year and for each five year period, and interpolated over each period. Requirements for teachers are computed from enrolments and from the organisation of teaching. A second part of the model traces the evolution of unit costs (per pupil per year) for different parts of the education system over the same periods allowing modifications to the base year data over the same five-year cycles. The third part of the model accumulates recurrent and investment costs for each year generated by growth in enrolments and by changes in unit costs. These may then be compared with the resources available which are projected from base year data and depend on changes in the size of the public budget, the proportion allocated to education and the share allocated to different levels. This allows computation of the balance between anticipated expenditure and the resources under different assumptions.

The model projects growth from a base line where expenditure and resources are in balance. Its primary significance for the financing of SFA therefore lies in the evolution of expenditure and resources, not in the absolute values attributed to the parameters. These reflect our initial assumptions. Thus although we have chosen to set base year resourcing for education at 14 per cent of the national budget we could have established a balanced budget for 1989/1990 at some other level. The results of SFA policies would have similar implications for the levels of resourcing in terms of the percentage change in total recurrent resources needed, though the actual levels would of course be different.

The Simulations

We have used the model to simulate three types of educational system (Simulation A, B and C) which broadly reflect the circumstances of countries embarking on SFA policies. In so doing

we have had to make reasonable assumptions concerning key parameters that reflect typical cases but do not collectively conform to data from any particular country. We have drawn these from UNESCO and World Bank data.

The definition of SFA we have chosen for the simulations is that Gross Enrolment Ratios reach 100 per cent by the year 2000 and that quality improvement occurs. A GER of 100 per cent is achieved in the models by increasing the proportion of children enrolled in Grade 1 which increases the flow through the system. Other system parameters are held constant initially.

In all cases we have assumed a simplified educational structure that has 6 years of primary schooling, six years of secondary schooling, and entry into a 3-year cycle of teacher training in grade 9. Secondary schooling is not differentiated into technical and vocational schooling since practice on this varies so widely that representative assumptions are not possible.

Briefly our starting points are:

Simulation A

This system has an initial GER (6-11) of 50 per cent and achieves a GER of 100 per cent in the year 2000. Population growth is 3.2 per cent per annum. In 1989/1990 Grade 1 entry represents 59 per cent of the number of 6 year olds. This rises to 120 per cent by 1994/1995 and remains at this level. Teachers' salaries per student are $US30.83 at primary, US$64.98 at secondary, and US$77.48 at teacher training level. Learning material support is US$1 at primary, US$2 at secondary, and US$3 for teacher training. Cost per classroom is US$2500 at primary, US$6500 at secondary, and US$8000 for teacher training.

Simulation B

This system has an initial GER (6-11) of 75 per cent and achieves a GER of 100 per cent in the year 2000. Population growth is 3.2 per cent per annum. In 1989/1990 Grade 1 entry represents 88 per cent of the number of 6 year olds. This rises to 118 per cent by

1994/1995 and remains at this level. Salaries, learning material support and costs per classroom are the same as Simulation A.

Simulation C

This system has an initial GER (6-11) of 80 per cent and achieves a GER of 100 per cent in the year 2000. Population growth is 2 per cent per annum. In 1989/1990 Grade 1 entry represents 94 per cent of the number of 6 year olds. This rises to 118 per cent by 1994/1995 and remains at this level. Teachers salaries per student are US$40.54 at primary, US$81.23 at secondary, and US$97.48 at teacher training level. Learning material support is US$1 at primary, US$2 at secondary, and US$3 for teacher training. Cost per classroom is US$2500 at primary, US$6500 at secondary, and US$8000 for teacher training.

In all models initial repetition rates are 14 per cent in 1989/1990 and promotion rates are 75 per cent. Drop-out is 11 per cent per annum. These values are applied as averages across Grade levels with the exception of the final year of primary where 20 per cent repetition is allowed to account of resitting of promotion examinations. The transition rate into secondary is kept constant at 40 per cent of primary completers. Twenty per cent of grade 9 completers enter teacher training. The main additional baseline assumptions that have that have been embedded in each model are summarised in the Table in the main text.

The values chosen for these and other parameters approximate key groups of countries. Simulation A represents the position of the groups of countries that currently have GERs (6-11) of less than 60 per cent. Simulation B represents the situation of Sub-Saharan Africa which has a weighted mean GER of 75 per cent. In both of these cases a population growth rate of 3.2 per cent has been used. Simulation C uses the weighted mean GER for all low and lower-middle income economies (80 per cent) with a lower population growth rate of 2.0 per cent derived from the weighted mean of this grouping.

We have made several additional assumptions to simplify our modelling. These include treating teacher training as homogeneous

and in one cycle, rather than separating the training of primary and secondary teachers as is commonly the case. Similarly we have not accounted for the provision of any specialised secondary or tertiary institutions with differentiated cost structures. Higher education has initially been allowed to grow at the rate of population growth, not at the rate at which secondary completers grow. In the absence of changing financial arrangements to fund higher education places this implies a reduction in the proportion of the cohort enrolled in higher education. We regard none of these as seriously limiting assumptions. Changing them in plausible ways might increase marginally our cost estimates but not the substance of our findings.

The Procedure

The modelling procedure adopted was to construct enrolment data for grades 1-6 primary, forms 1-6 secondary and 3 years teacher training for the base year from the initial assumptions concerning:

- The Gross Enrolment Ratio (GER) - i.e. the number of students enrolled compared with the number in the 6-11 year old age group.
- the underlying population growth rate.
- the percentage of the 6 year old age group enrolled in Grade 1.
- the rate of repetition in each Grade.
- the rate of promotion from Grade to grade
- the consequent rate of drop-out.
- the rate of promotion from primary to secondary

These base year enrolments were then associated with average values for the number of students per class, the number of teachers per class, the consequent number of students per teacher, and the rate of attrition amongst teachers in service. On the basis of these inputs, and their values over the planning periods,

the model then computes enrolment growth forward and identifies needs for new teachers.

A second set of assumptions are then introduced concerning unit costs per year per student. These are identified for the base year in relation to primary and secondary cycles. They include:

- the salaries of all categories of staff at school level
- school operating expenses including the cost of learning material and boarding subsidies
- the salaries and operating expenses associated with inspection and regional and national administration.

Further assumptions are then made concerning the amount of double shifting and the cost per classroom at different levels. Higher education expenditure is then added into the model as base line data and is projected forward according to assumptions that may be independent of those in the rest of the model. It is initially assumed to grow at the rate of population growth.

From these data, total expenditure can then be computed for both recurrent and investment budgets and compared with anticipated flows of resources. Reforms could then be introduced into the simulations cumulatively, as specified in the main text, and the cost implications calculated.

FIGURE 1 Duration of the First Cycle (Years)

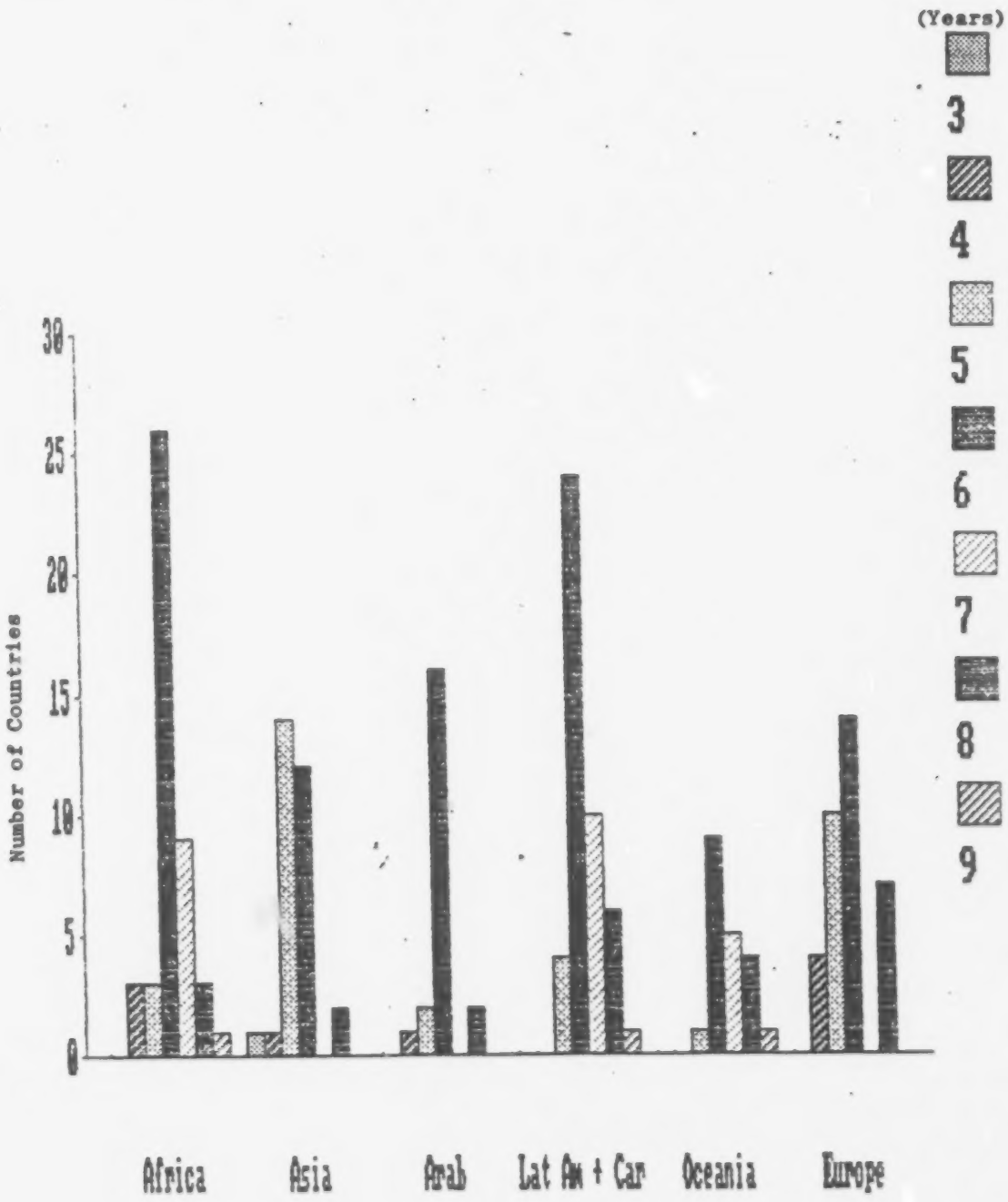


FIGURE 2. Duration of the Second Cycle (years)

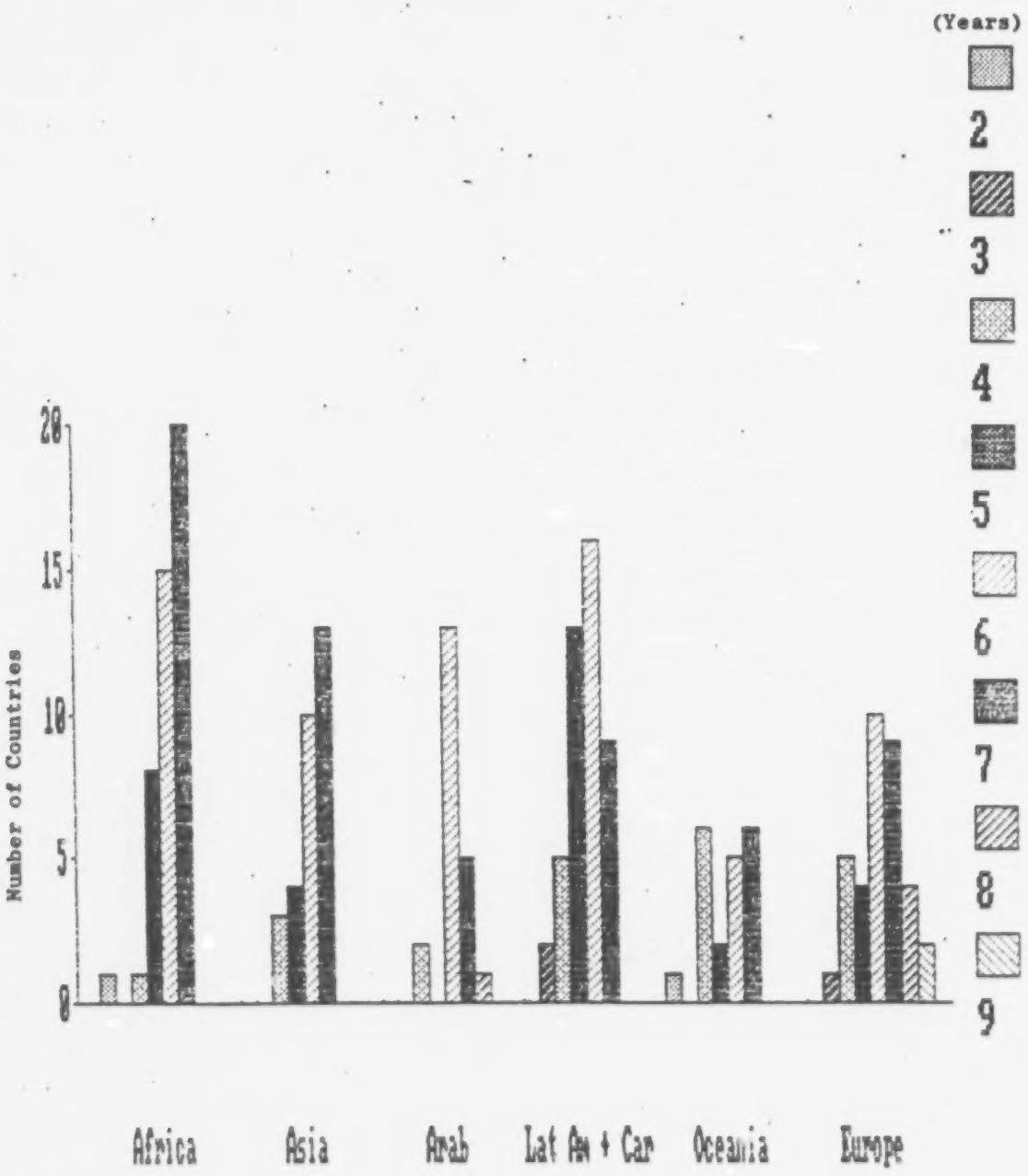


FIGURE 3. Age of Entry (Years)

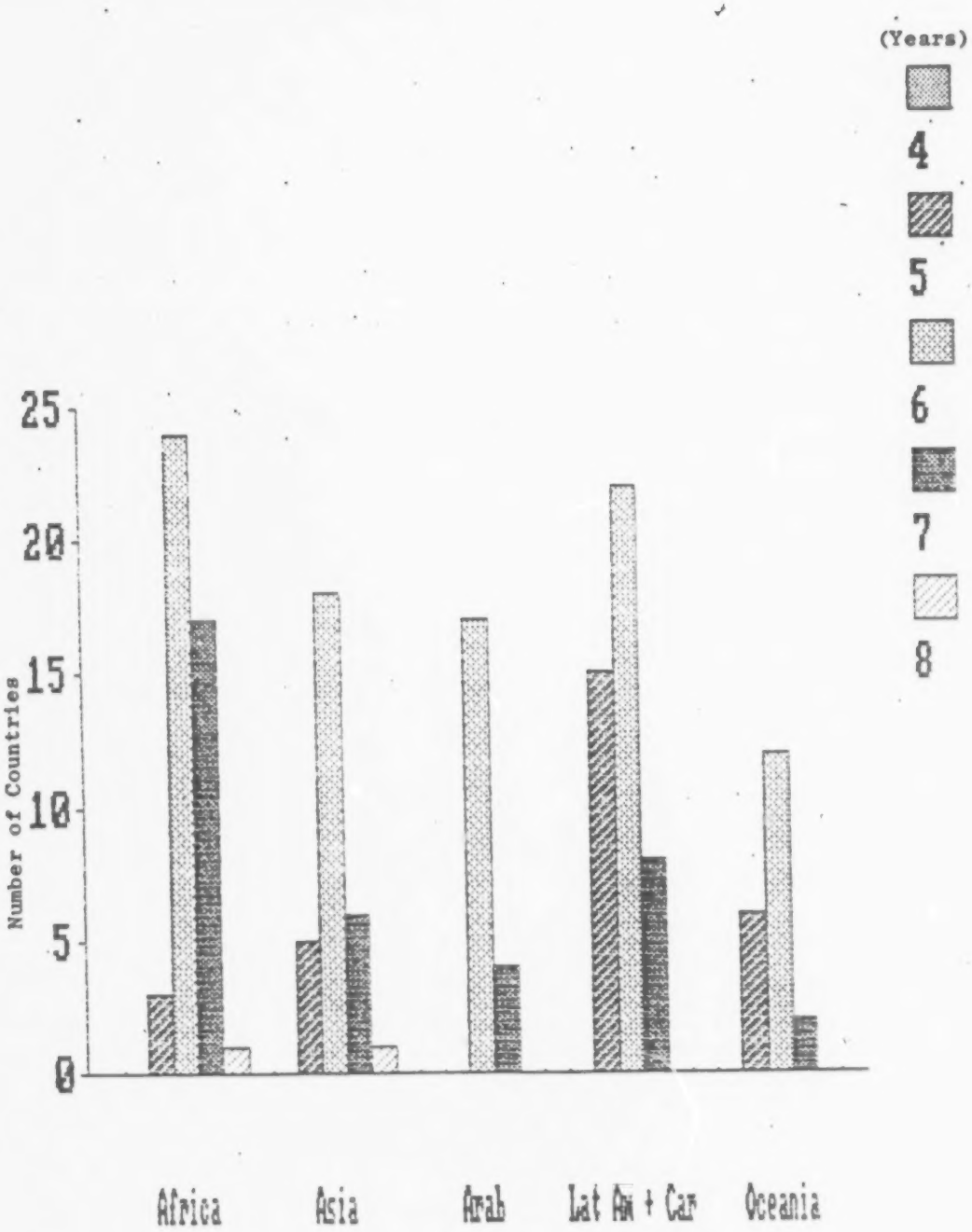
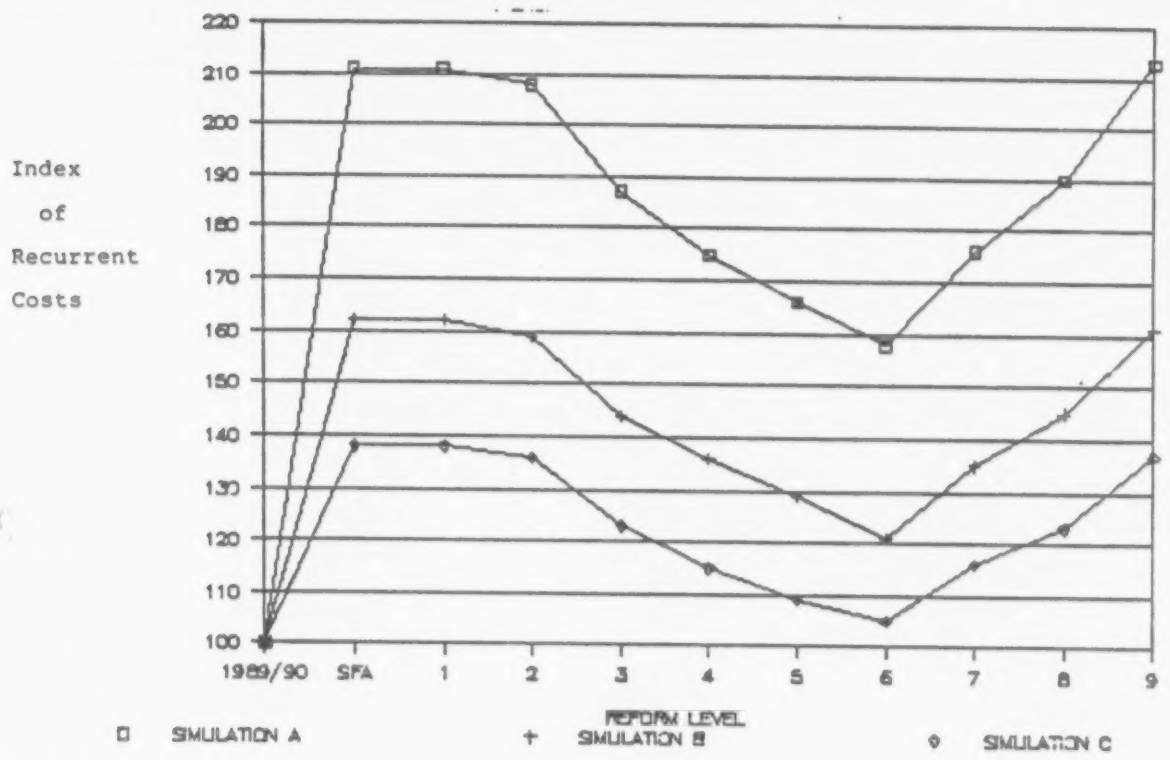


Figure 4. Recurrent Costs of SFA: Three Country Cases with and without Policy Reforms



Notes: SFA - Schooling For All in 1999/2000, with no policy reforms.
Reform Levels:

1 Repetition reduced from 14% to 6%; promotion increased from 75% to 83%; drop-out unchanged at 11%.
2 Incidence of boarding reduced from 15% to 7.5% at secondary; and from 25% to 12.5% in teacher training. 50% of capital costs of primary classrooms recovered from communities by 1995: public sector cost falls from $2500 to $1250.
3 20% double-shifting at primary and secondary by 1995, constant thereafter.
4 Class sizes increase from 40 to 45 at primary and secondary, and from 30 to 35 in teacher training, by 1995.
5 Community financing increased from zero to 10 per cent of primary places and from 5 to 15% of secondary places by 1995. Such financing covers 80% of recurrent costs for the schools involved.
6 Higher education subsidies from the state frozen at 1990 levels.
7 Drop-out rate falls from 11% to 7%, and promotion rises from 75% to 87% by 1995.
8 Learning Resources per child increased to $5 by 1995 at all levels.
9 Teacher salaries increased by 7.5% to 1995 and a further 7.5% to 2000.

Figure 5. Simulation A

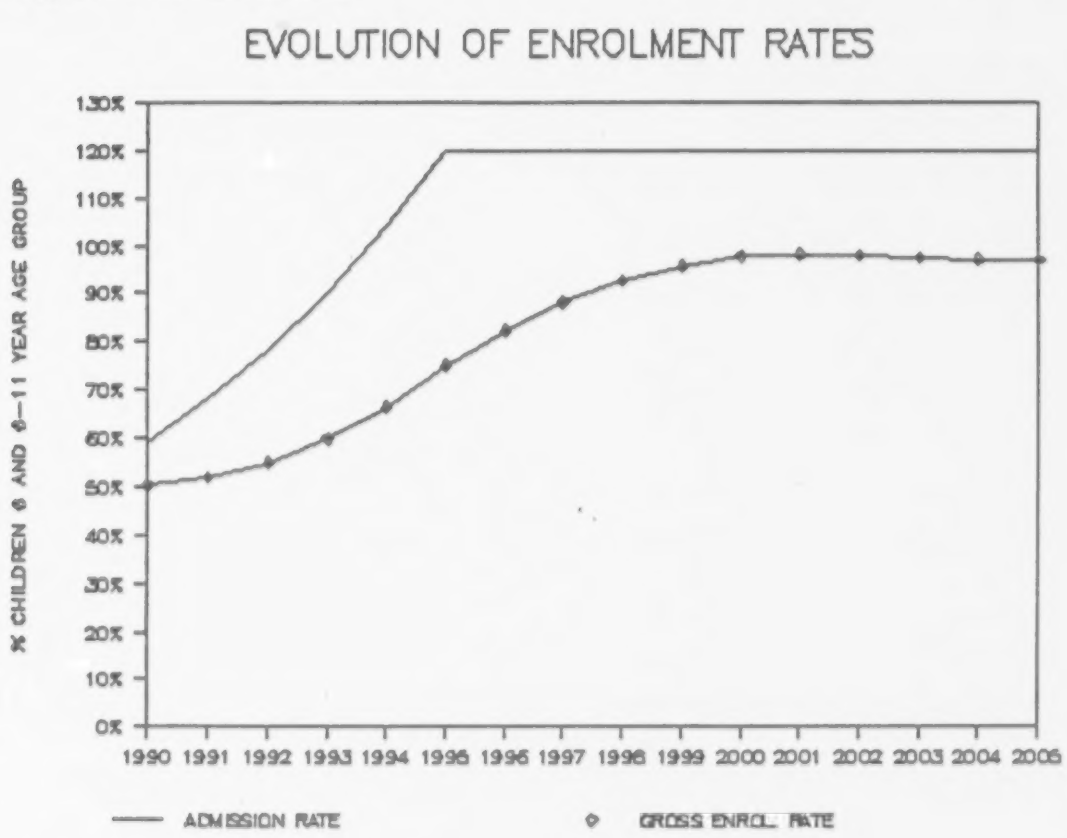


Figure 6. Simulation A

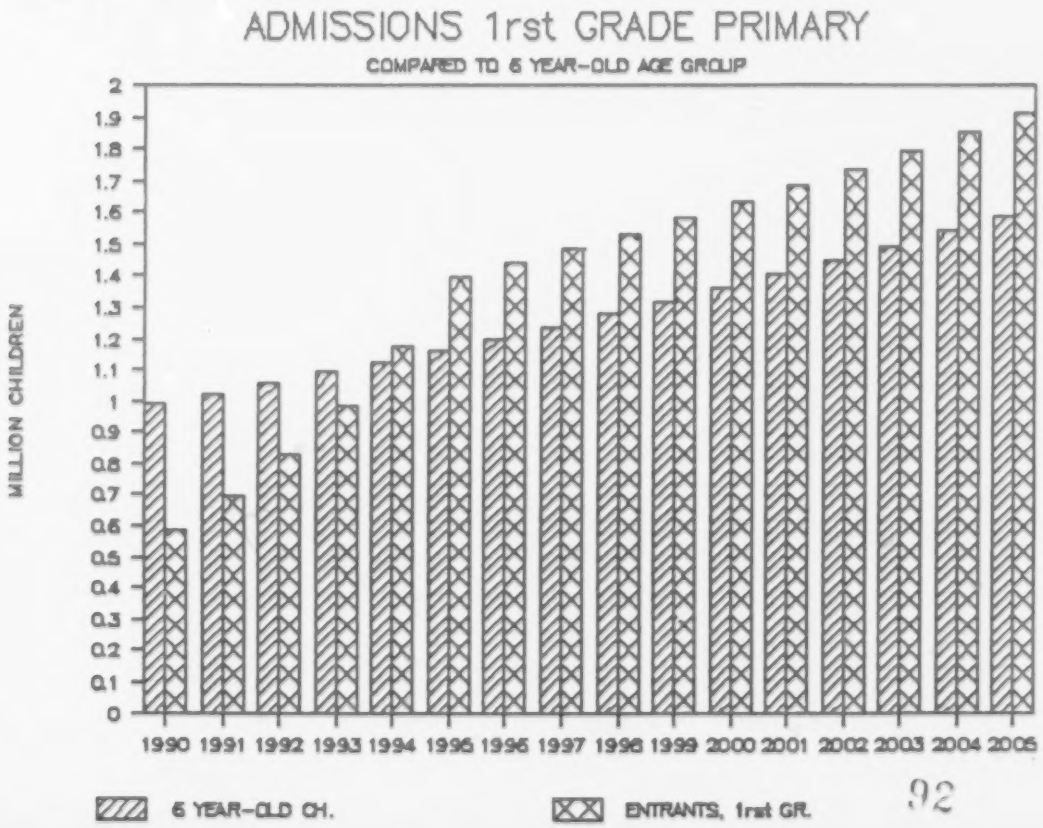


Figure 7. Simulation A

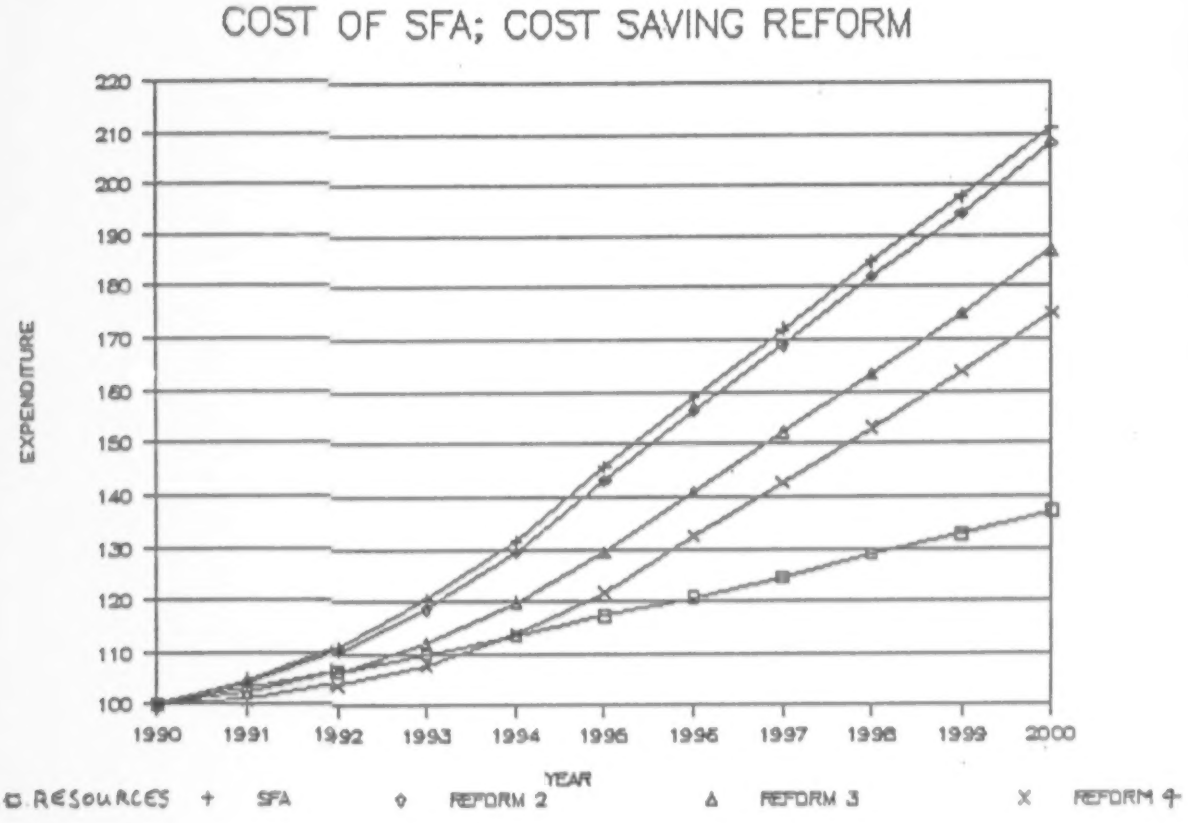


Figure 8. Simulation A

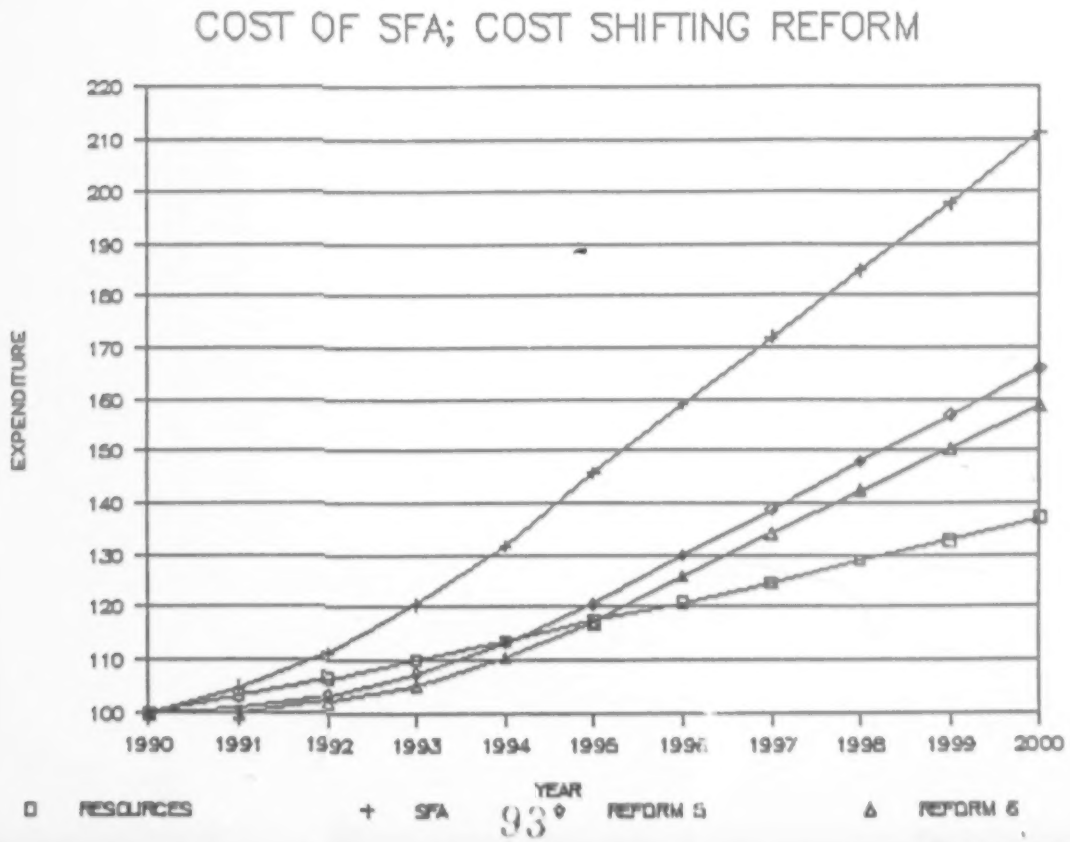


Figure 9. Simulation A

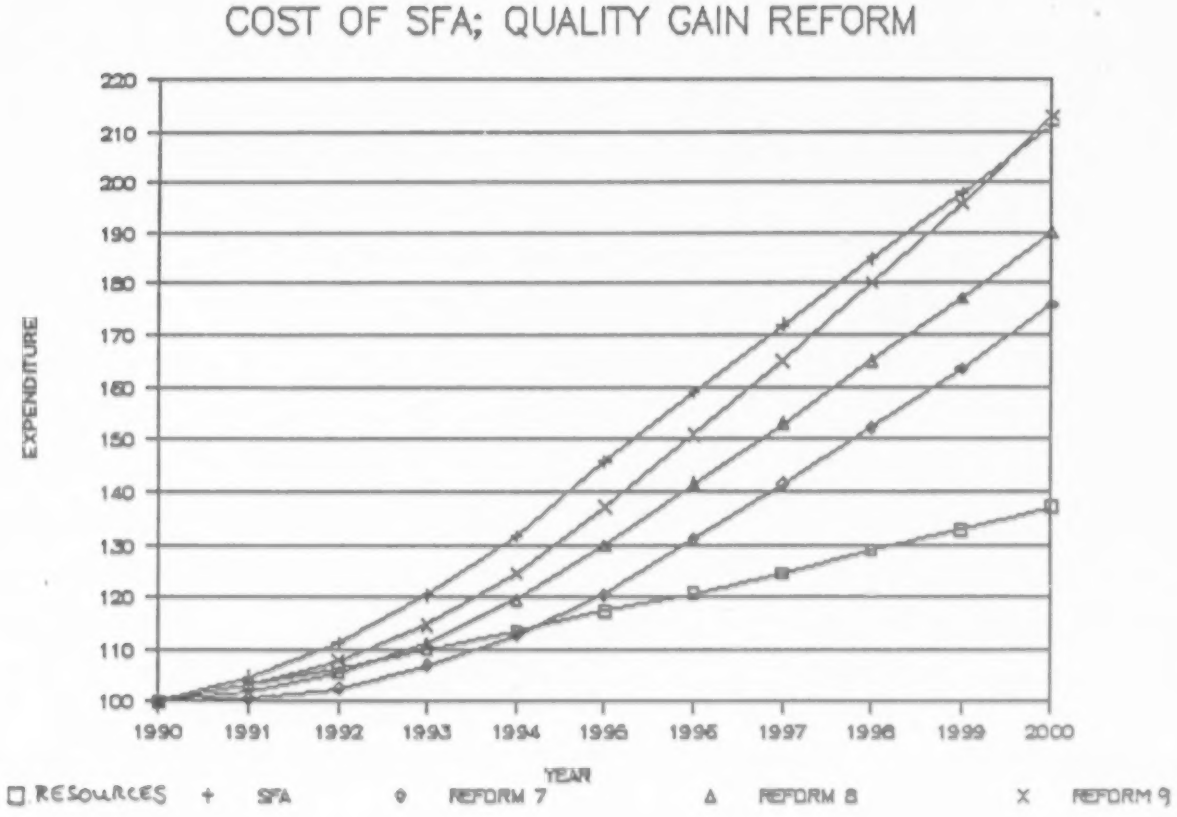


Figure 10. Simulation B

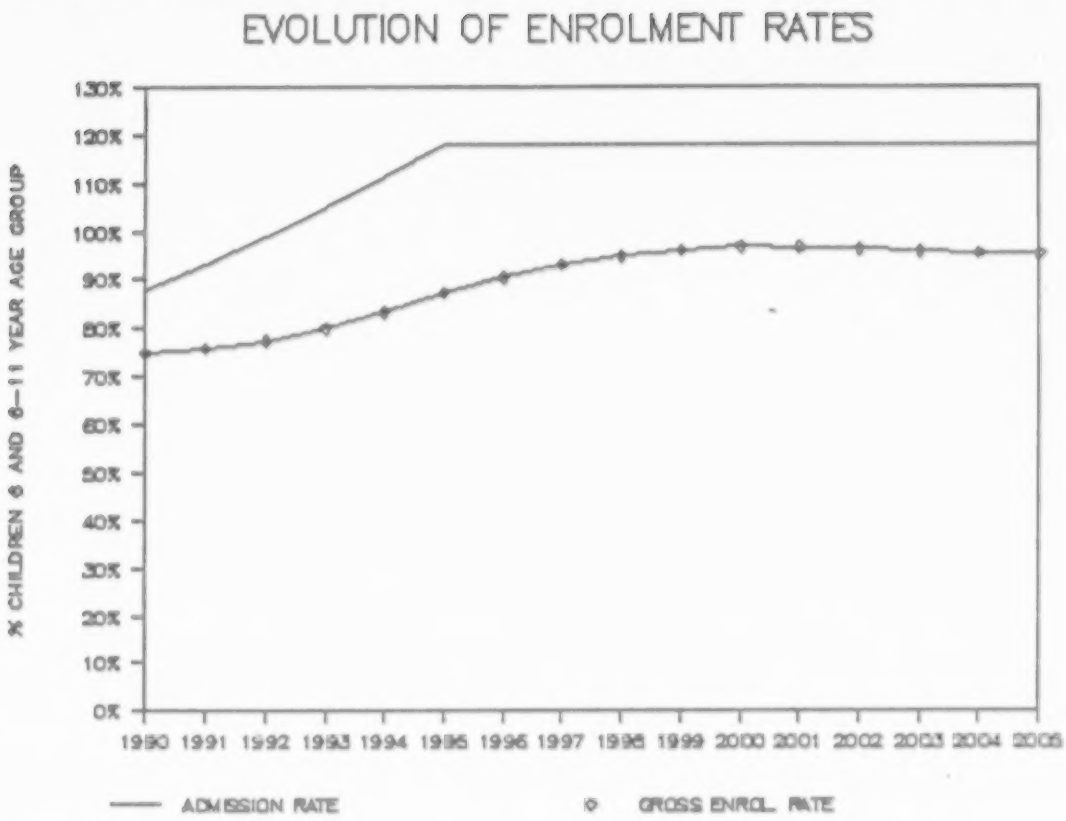


Figure 11. Simulation B

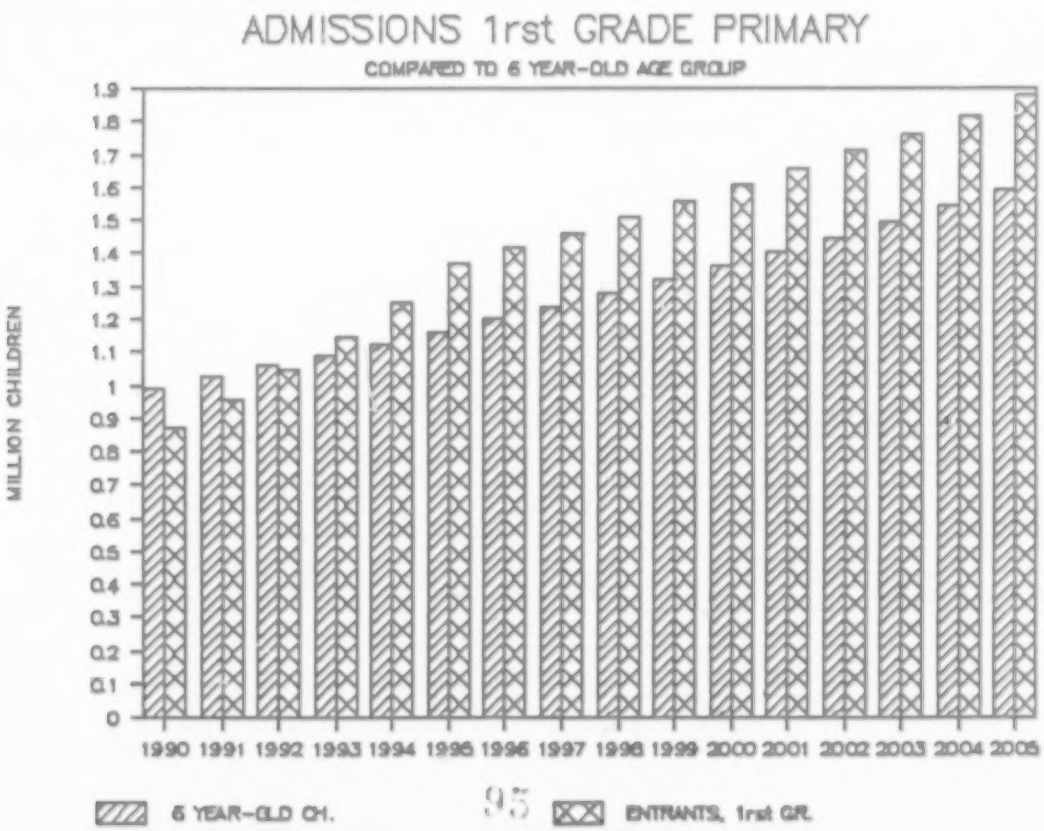


Figure 12. Simulation B

Figure 13. Simulation B

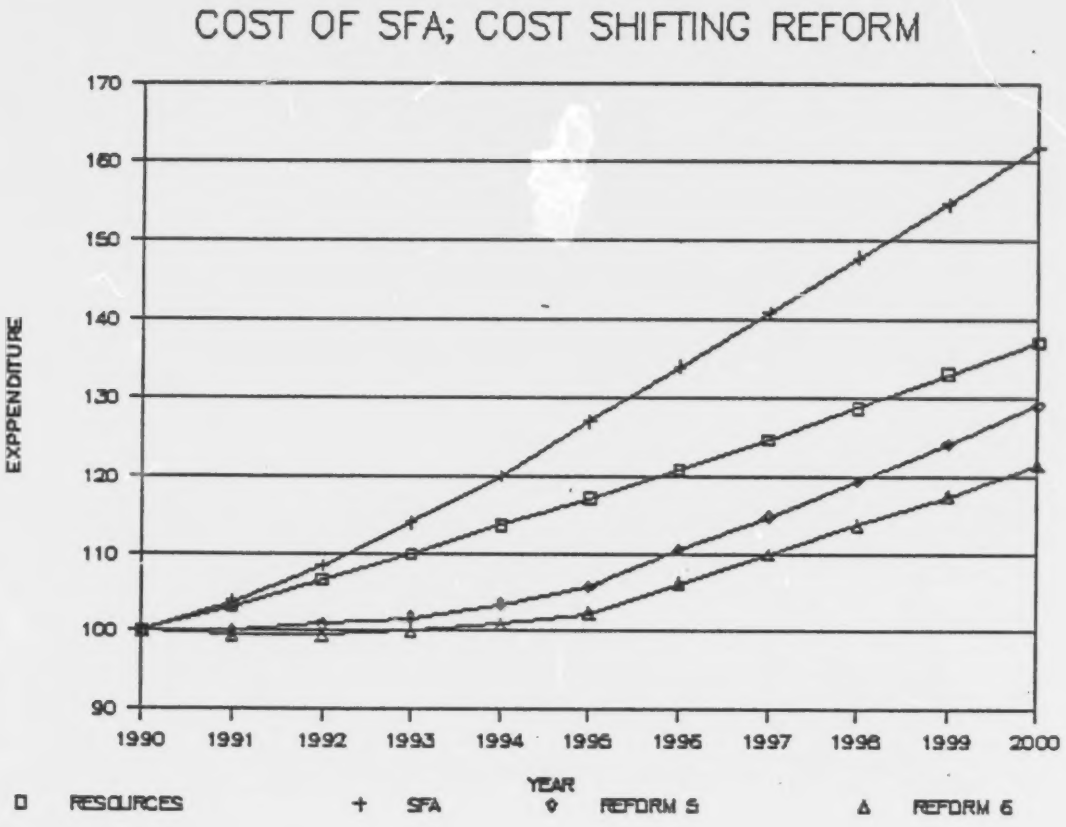


Figure 14. Simulation B

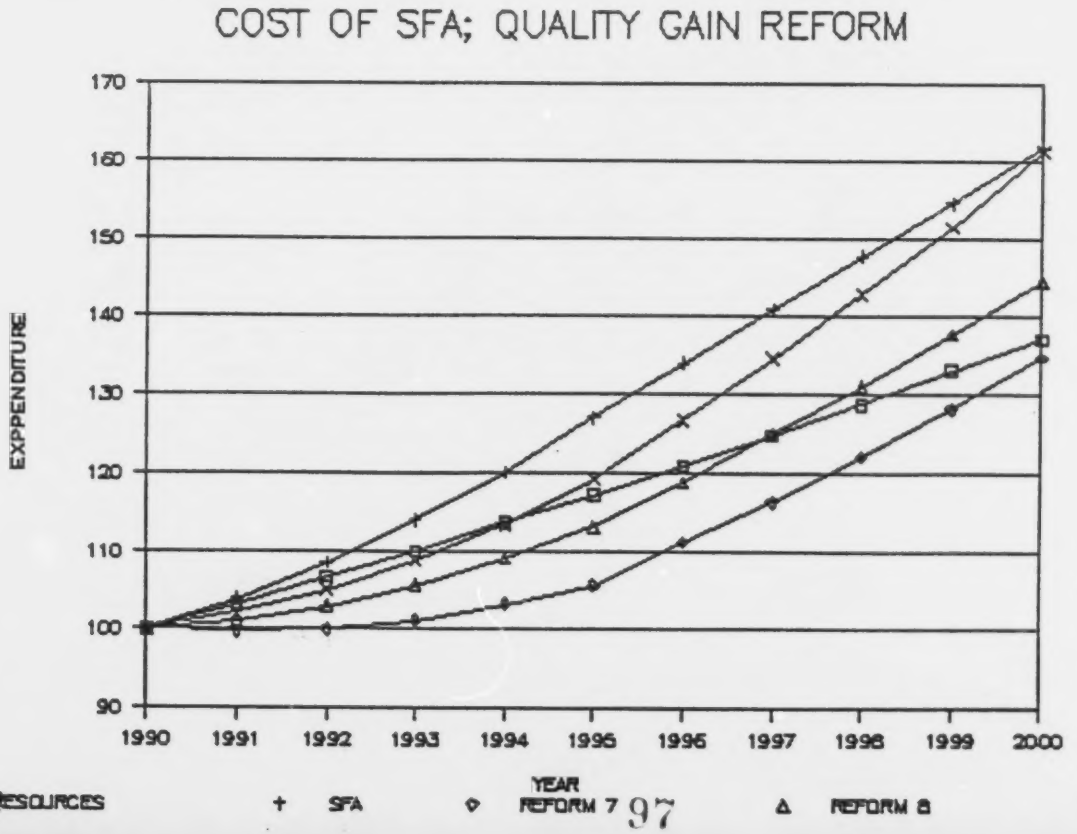


Figure 15. Simulation C

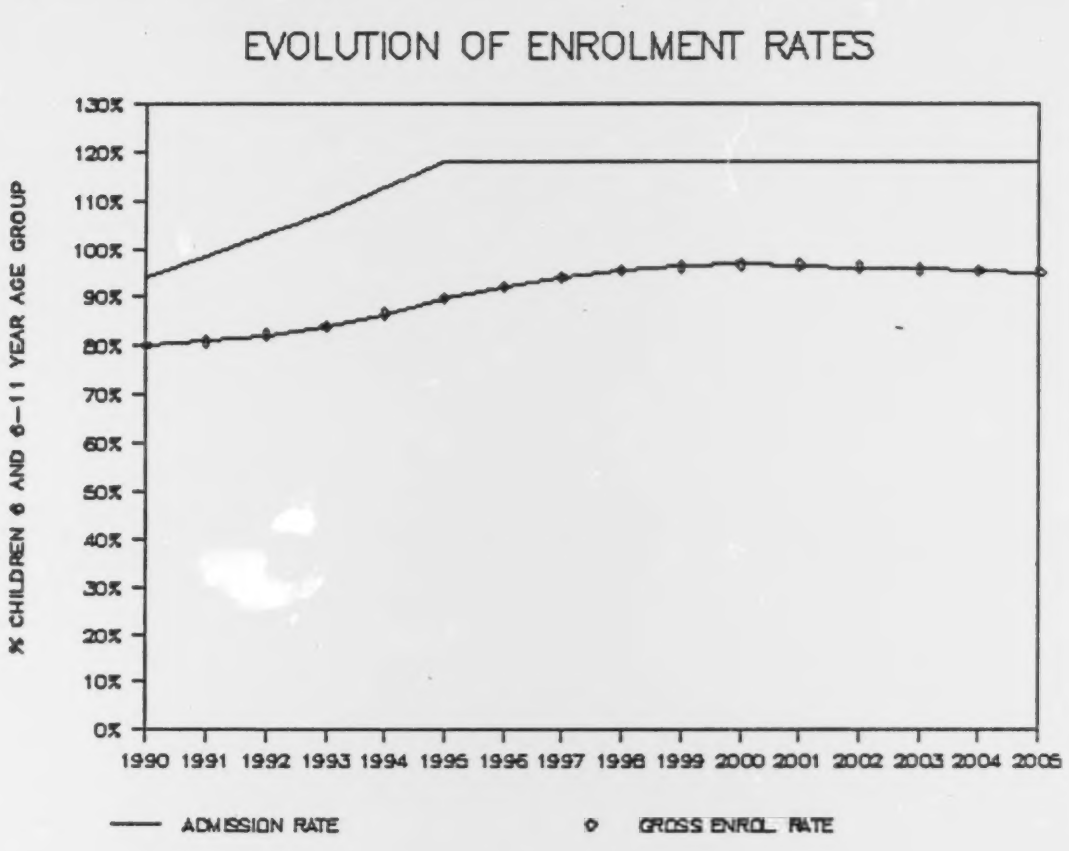


Figure 16 . Simulation C

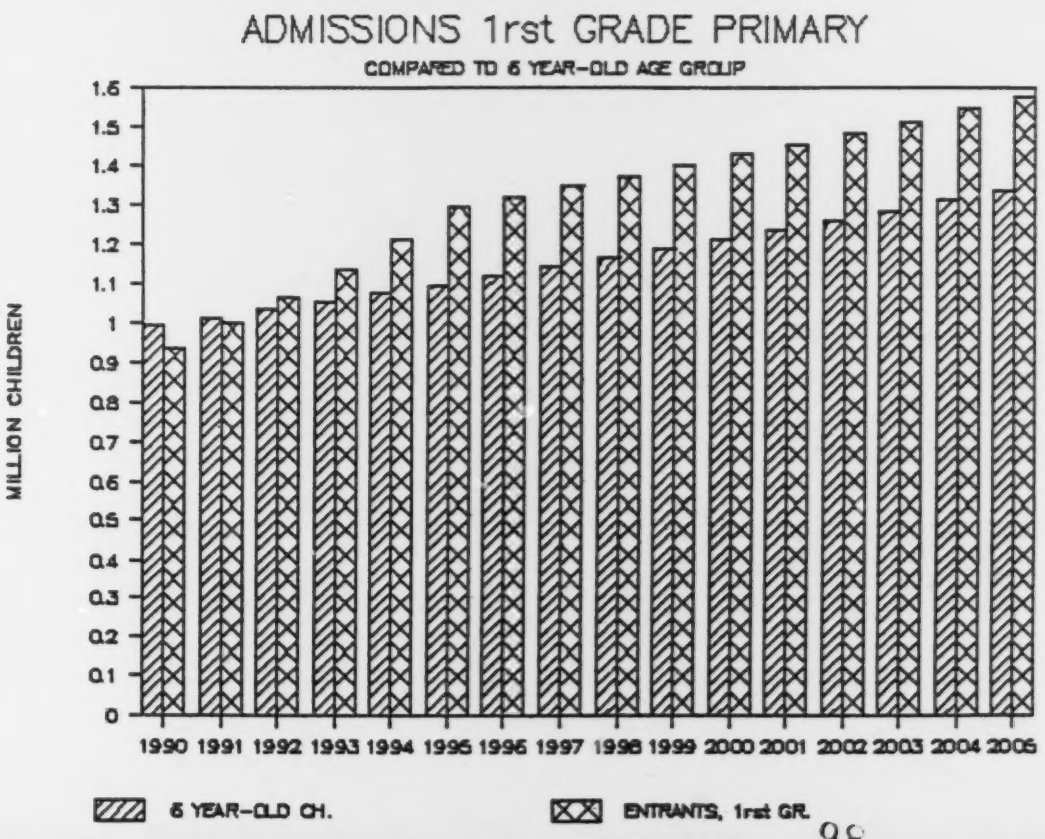


Figure 17. Simulation C

Figure 18. Simulation C

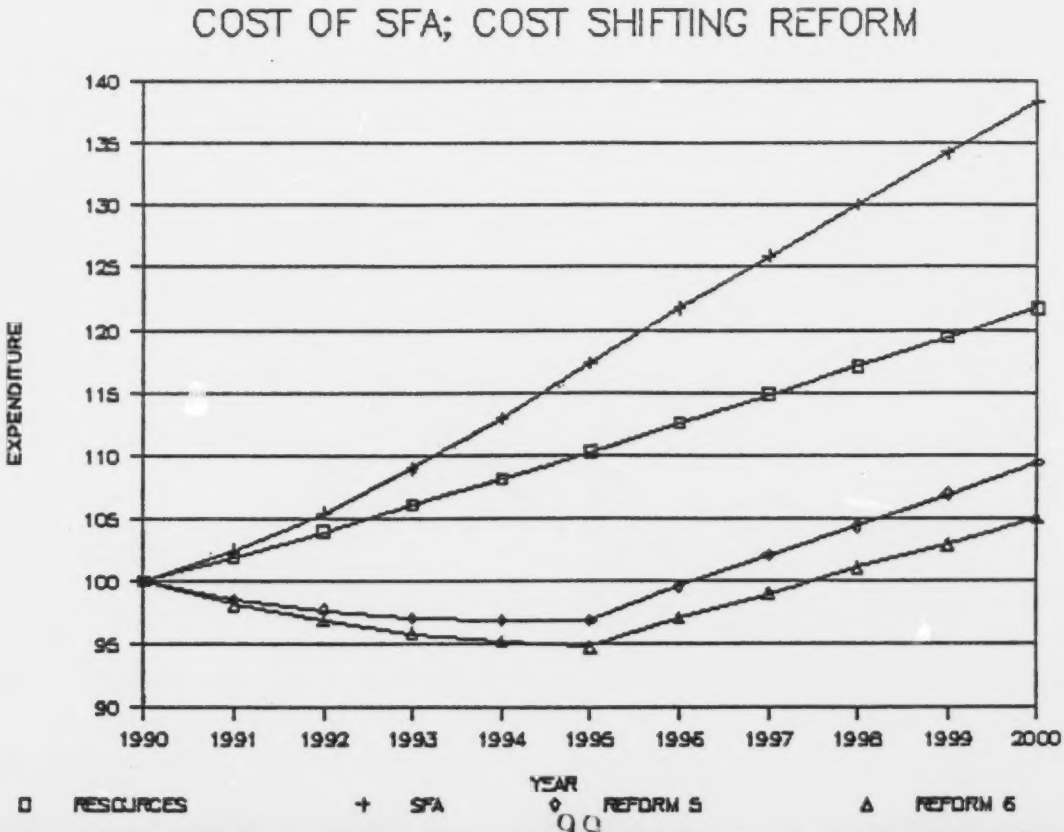
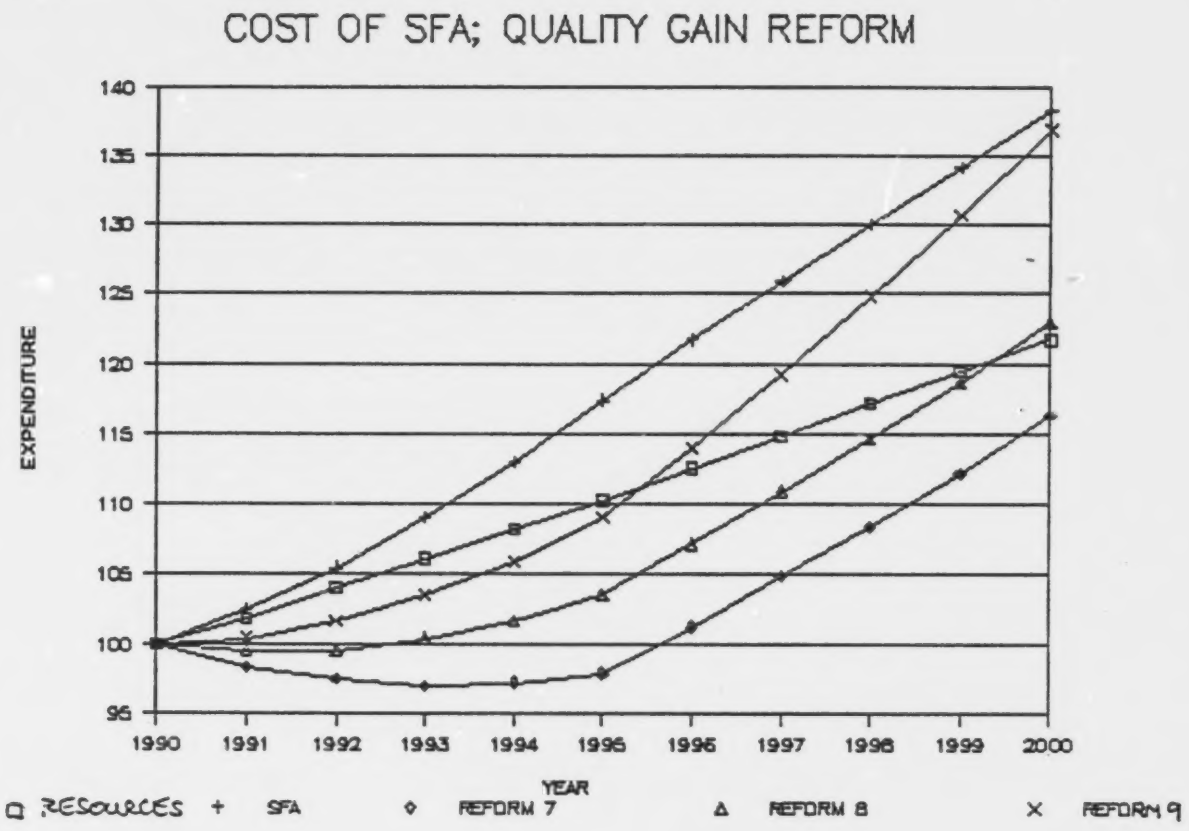


Figure 19. Simulation C



References

Beebout H.S., 1972, "The Production Surface for Academic Achievement: An Economic Study of Malaysian Secondary Schools", PhD Dissertation, Wisconsin.

Berstecher D., 1989, Primary Education and Economic Recession, UNESCO, Paris (mimeo).

Bray M., 1989, Multiple-Shift Schooling: Design and Operation for Cost-Effectiveness, Commonwealth Secretariat, London.

Carr Hill R. and J. Lintott, 1984, Comparative Analysis of Statistical Data on Adult Education for 84 Countries, Office of Statistics, UNESCO ST-85/WS/6.

Colclough C., 1982, "The Impact of Primary Schooling on Economic Development: A Review of the Evidence", World Development vol 10, no 3, pp.167-185.

_____, 1989, "Who Should Learn to Pay? An Assessment of Neo-liberal Approaches to Educational Policy", IDS, Sussex (mimeo).

_____, 1990, "Raising Additional Resources for Education in Developing Countries: Are Graduate Payroll Taxes Preferable to Student Loans?" International Journal of Educational Development, (forthcoming).

Cornia, 1984, "A Summary and Interpretation of the Evidence", in R. Jolly and Cornia (eds.), The Impact of World Recession on Children, a study prepared for UNICEF, Pergamon, Oxford, 1984.

Cummings K., 1986, Low Cost Primary Education; Implementing an Innovation in Six Nations, IDRC - 252e.

Dore R., 1976, The Diploma Disease, Unwin Education, London.

Farrell J.P. and E. Schiefelbein, 1974, "Expanding the Scope of Educational Planning: The Experience of Chile", Interchange, vol 5, no 2, pp.18-30.

Foster P., 1965, "The Vocational School Fallacy in Development Planning", reprinted in C.A. Anderson and M.J. Bowman, 1965, Education and Economic Development, Aldine Publishing Co., Chicago.

Green R.H., 1990, "Neo Liberalism and the Political Economy of War", IDS, Sussex (mimeo).

Heyneman S., 1978, Textbooks and Achievement; What We Know, World Bank Staff Working Paper No 298, World Bank, Washington D.C.

Jimenez E., M. Lockheed and N. Watanawaka, 1988, "The Relative Efficiency of Private and Public Schools: the Case of Thailand", World Bank Economic Review, vol 2, no 2, May, pp.139-164, Washington D.C.

Lewin K., A. Little and C. Colclough, 1982, Adjusting to the 1980's: Taking Stock of Educational Expenditure in Financing Educational Development IDRC - 205e.

Lewin K., 1987, Education in Austerity; Options for Planners, undamentals of Educational Planning No. 36, International Institute of Educational Planning, UNESCO, Paris.

_____ and D. Berstecher, 1989, The Costs of Recovery; Are user Fees the Answers? IDS Bulletin vol 20, no 1.

Lockheed M. et.al., 1989, Improving Primary Education in Developing Countries: A Review of Policy Options, World Bank, Washington D.C. (mimeo).

Mingat A. and J.P. Tan, 1985, "Subsidisation of higher education versus expansion of primary enrolments: what can a shift of resources achieve in sub-Saharan Africa?" International Journal of Educational Development, vol 5, no 4, pp.259-268.

Perraton H. (ed.), 1986, Distance Education: An Economic and Educational Assessment of Its Potential in Africa, The World Bank, Rept. EDT43, 1986.

Psacharopoulos G., 1987, "Public versus private schools in developing countries: evidence from Colombia and Tanzania", International Journal of Educational Development, vol 7, no 1, pp.59-67.

UNICEF, 1990, The State of the World's Children 1990, Oxford.

Whalley J. and A. Ziderman, 1989, "Payroll Taxes for Financing Training in Developing Countries", PPR Working Paper No 141, World Bank, Washington D.C.

Woodhall M., 1983, "Student Loans as a means of financing higher education: lessons from international experience", World Bank Staff Working Paper, No. 500, Washington D.C.

World Bank, 1986a, Financing Education in Development Countries: An Exploration of Policy Options, Washington D.C.

_____, 1986b, Staff Approval Report, Republic of Senegal Primary Education Development Project, Rept No 6179-SE.

_____, 1988, Education in sub-Saharan Africa: Policies for Adjustment, Revitalisation and Expansion, Washington D.C.

_____, 1989, Staff Appraisal Report, Sri Lanka, General Education Project, Rept No 7918-CE.

_____, 1989, World Development Report 1989, Washington D.C.

APPENDIX

EDUCATING ALL THE CHILDREN:

THE ECONOMIC CHALLENGE FOR THE 1990S

APPENDIX

EDUCATING ALL THE CHILDREN; THE ECONOMIC CHALLENGE FOR THE 1990s

FIVE COUNTRY CASE STUDIES

Countries included:

GHANA
SENEGAL
PHILIPPINES
SRI LANKA
COLOMBIA

Appendix
Five Country Case Studies

The countries selected for inclusion in this appendix differ in many ways: economically, geographically, culturally, and historically. Moreover, as we see below, their education systems and educational policies contrast sharply with one another. However, one factor they all share is that each country analyzed here has implemented important education policy reforms during the last decade. In several cases, these reforms have been introduced in response to financial and economic pressures. In all cases, governments have initiated the education policy reforms analyzed below with their eye on the goal of providing universal access to high quality primary education.

Each case study begins with a brief overview of the education sector in the selected country, indicating the coverage of the system and the particular problems faced by the sector before the introduction of the reforms. Next, the impact of the national economic situation on education sector performance and prospects is considered. After this, the case study describes the country's policy responses to these sectoral problems and economic constraints. In several instances, this section includes a detailed presentation of the design and implementation of particularly successful education reforms. Following this is a section that evaluates the success of the policy reforms. The case study concludes with a set of lessons learned that may be relevant for other countries considering policy reforms in their education sectors.

TABLE OF CONTENTS

GHANA CASE STUDY 1
OVERVIEW OF THE EDUCATION SECTOR 1
KEY SECTORAL PROBLEMS 1
ECONOMIC CONSTRAINTS AFFECTING THE EDUCATION SECTOR 3
POLICY RESPONSES TO SECTORAL PROBLEMS AND ECONOMIC CONSTRAINTS 3
STATUS OF THE REFORMS 8
LESSONS OF THIS EXPERIENCE FOR OTHER COUNTRIES . . . 11

SENEGAL CASE STUDY 13
OVERVIEW OF THE EDUCATION SECTOR 13
KEY SECTORAL PROBLEMS 13
ECONOMIC CONSTRAINTS AFFECTING THE EDUCATION SECTOR 15
POLICY RESPONSES TO SECTORAL PROBLEMS AND ECONOMIC CONSTRAINTS 16
STATUS OF THE REFORMS 19
The Key Policy Innovation: Double-Shift Urban Schools 23
LESSONS OF THIS EXPERIENCE FOR OTHER COUNTRIES . . . 25

PHILIPPINES CASE STUDY 27
OVERVIEW OF THE EDUCATION SECTOR 27
KEY SECTORAL PROBLEMS 28
ECONOMIC CONSTRAINTS AFFECTING THE EDUCATION SECTOR 29
POLICY RESPONSES TO SECTORAL PROBLEMS AND ECONOMIC CONSTRAINTS 30
STATUS OF THE REFORMS 33
LESSONS OF THIS EXPERIENCE FOR OTHER COUNTRIES . . . 34

SRI LANKA CASE STUDY 36
OVERVIEW OF THE EDUCATION SECTOR 36
KEY SECTORAL PROBLEMS 37
ECONOMIC CONSTRAINTS AFFECTING THE EDUCATION SECTOR 38
POLICY RESPONSES TO SECTORAL PROBLEMS AND ECONOMIC CONSTRAINTS 39
STATUS OF THE REFORMS 41
LESSONS OF THIS EXPERIENCE FOR OTHER COUNTRIES . . . 42

COLOMBIA CASE STUDY 43
OVERVIEW OF THE EDUCATION SECTOR 43
KEY SECTORAL PROBLEMS 43
ECONOMIC CONSTRAINTS AFFECTING THE EDUCATION SECTOR 44
POLICY RESPONSES TO SECTORAL PROBLEMS AND ECONOMIC CONSTRAINTS 45
The Introduction of Escuela Nueva 47
Implementation of Escuela Nueva 50
Evaluation of Escuela Nueva 51
STATUS OF THE REFORM 52
LESSONS OF THIS EXPERIENCE FOR OTHER COUNTRIES . . . 52

GHANA CASE STUDY

OVERVIEW OF THE EDUCATION SECTOR[1]

Until the mid-1970s, Ghana had one of the most developed and effective educational systems in Western Africa. It boasted one of the longest pre-university systems on the continent: six years of primary, four years of middle and seven years of secondary education.

Primary school was free and compulsory for pupils five to 11 years. About four-fifths of primary school graduates would proceed to state-supported middle schools, for children 12-15. These schools were primarily academic and about 80 percent of middle school graduates would enter the labor force. A small number of junior secondary schools (JSSs) were developed as an alternative to the traditional academic based curriculum of middle schools, that offered a curriculum combining academic subjects with practical pre-vocational training. As of 1983, 79 percent of 6 to 16 year olds were enrolled in primary education.

Secondary level education was open to students ages 16-22. Senior secondary schools and technical/vocational schools offered free tuition, though students paid two-thirds of the boarding fees. Other secondary education was provided by teacher training institutions as well as departmental training institutions (for nurses, agricultural extension workers, etc.). Tuition and boarding was fully covered by the Government for the latter two. As of 1983, 38 percent of those in the 17-21 year age range were enrolled in secondary education.

Tertiary education was offered to students aged 23-26 at four polytechnics and three universities, where Government also paid tuition and boarding costs. 1.8 percent of university-age students were enrolled in higher education.

KEY SECTORAL PROBLEMS

Macroeconomic Factors. The economic decline of the 1970s led to a serious decline in the quality of education. Educational expenditures fell in both relative and absolute terms, and came to only 1.7 percent of GDP in 1985 compared

---

[1] This section drawn from two World Bank reports: The President's Report, November 13, 1986, and Basic Education for Self-Employment and Rural Development A Sub-Sector Study, March 22, 1989.

with 6.4 percent in 1976.

Equity. There was a definite urban bias in the provision of education. World Bank sector work revealed that, as the total amount of real resources for education stagnated or shrunk from the early 1970s, increasing proportions of available resources tended to be devoted to maintaining a high-quality but inappropriate education in a small number of urban primary and well-established boarding secondary institutions. Further, the curriculum was decidedly academic, which was considered increasingly irrelevant to the Ghanaian economy.

Lack of Enrollment Growth. School enrollments stagnated or declined at all levels with respect to the school age population. From 1981/82 to 1984/85 growth of school enrollment did not keep pace with the growth of the school age population. Whereas the school age population grew at 3.6 percent per year, enrollments grew by 1.5 percent for primary, 1.1 percent for middle and 1.5 percent for secondary levels. University enrollments remained constant over this period.

Adult illiteracy rates reached as high as 60-70 percent, which was a further indication of the decline of the Ghanaian education system.

Teacher attrition. Due to declining salaries, trained teachers were leaving in droves, and were replaced with untrained personnel. It was estimated that the untrained teaching staff as a proportion of the total represented 51 percent of primary and 25 percent of the middle school teachers. Further, there was a total lack of control over hiring practices which resulted in an excess of teachers and unnecessary auxiliary staff, which contributed to high units costs.

Shortages of pedagogical materials. Education materials were in short supply--essential textbooks, library books and other supplies were unavailable due to the lack of foreign exchange. The Government suspended construction or completion of new facilities. The existing facilities had no maintenance system and were very crowded. Communities lost interest in school construction and maintenance.

Lack of planning: Lack of effective planning was evident in many areas of the sector with no norms being applied to physical facility provision, spatial requirements, teacher allocation or financing. Other planning problems included the plethora of organizations involved in planning and policy

making; separation of the planning and budgeting functions; insufficient guidelines for planners; and the fact that the Planning Division was at the same level as other divisions in the Ghana Education Service (GES). Universities fell outside the responsibility of the educational planning organizations altogether. Most decisions were made on the basis of "crisis management."

As indicated above, an early Government policy decision was to provide secondary and tertiary boarding facilities in order to enable students from diverse tribal backgrounds to study together. By 1985, over 10 percent of the educational budget for secondary and tertiary education was devoted directly to a food subsidy for students, and indirectly for the salaries of cooks and other non-teaching staff as well as for residence fees.

In sum, as a sub-sector study conducted by the World Bank in March of 1989 reports (page 1), "The net result of more than a quarter of a century of post-independence educational development was a 60-70 percent rate of adult illiteracy and a consequent stagnant agricultural sector; a curriculum that encouraged students to seek white collar sinecures rather than productive employment, and a program and methods of instruction that tended to alienate the students from their communities and cultural roots."

ECONOMIC CONSTRAINTS AFFECTING THE EDUCATION SECTOR

Throughout the 1970s and early 1980s, Ghana's economy sustained a series of external shocks. These circumstances (increased petroleum prices, and a softening in prices of Ghana's major exports, as well as the sudden return of over one million Ghanaians from Nigeria) contributed to the downturn of the economy which is reflected in key economic indicators between 1970 and 1982: per capita real income declined by 30 percent; import volumes dropped by a third; real export earnings fell 52 percent; domestic savings and investment declined from 12 percent and 14 percent of GDP, respectively, in 1970 to almost insignificant levels; inflation ran at 44 percent per annum over the period.[2]

[2] The World Bank, President's Report, November 13, 1986.

POLICY RESPONSES TO SECTORAL PROBLEMS AND ECONOMIC CONSTRAINTS[3]

The Provisional National Defence Council, constituted when Flight Lieutenant Jerry Rawlings took power in December of 1981, introduced an economic recovery program (ERP) in 1983. The major objectives of the ERP included: (a) to raise relative prices in favor of exports and production; (b) to restore fiscal and monetary discipline; (c) to initiate the rehabilitation of the country's productive base and economic and social infrastructure; and (d) to encourage private investment. During the first phase of the ERP (1983-1986) there was a strong emphasis on the economic sectors. The policies initiated at this time were intended to shift resources from traders to producers and from urban to rural areas.

The second phase, covering the period 1986-1988 placed greater emphasis on the social sectors including education. The priority for all social sectors was (a) to improve allocation of operations and maintenance expenditures and (b) to improve the planning and implementation of public investment, thereby increasing the returns on those expenditures.

With ERP as the springboard, a program of educational reforms was introduced in 1987. The key objectives of the education sector reform program are to:

1) expand access to primary schools especially in the North and other areas where enrollments were persistently low;

2) improve educational quality, efficiency and relevance;

3) make educational financing more efficient and equitable; and

4) strengthen system planning and educational administration, making them more efficient and effective.

In order to realize these objectives, the Government has

---

[3] This section drawn heavily from interviews with Nicholas Bennett, World Bank residential representative to Ghana.

initiated a major restructuring of the system, reducing the length of pre-university education from 17 to 12 years. This will be phased in over the space of 6 years, from 1987-1992. Savings here are to be allocated to primary education. The school year has been lengthened from 36 to 40 weeks to offset partially the time lost. In addition, the Government has introduced the junior secondary school (JSS) nationwide, for grades 7-9. The curriculum developed for these new JSSs is more consistent with Ghanaian social/economic/cultural conditions, making maximum use of environmental resources, which is intended to reduce unit costs.

Relevancy of the curriculum is a particularly important aspect of the reform. The Government feels it was necessary to reform the educational system so as to train students to meet the needs of the economy. In 1965, the percent of the working population engaged in agricultural work was 61 percent; that decreased only to about 56 percent in 1980. (The percentage of workers in industry rose from 15 percent to 18 percent, and in the services from 24 percent to 26 percent) [4] Though absolute predictions for future manpower needs could not be made, the Government determined that the prospects for growth in employment in the modern wage sector were poor. It predicted that over a three-year period alone (from 1987 - 1990) the ERP would make redundant about 60,000 - 70,000 urban workers in the civil service and state-owned corporations (these two employ 75 percent of all modern sector workers) as well as in private corporations affected by the new liberalization of the economy. In sum, the Government concluded that very few primary and junior secondary schools leavers would find employment in the formal sector. Rather, they would be forced to find employment in farming and fishing, in informal service construction, road building and production activities, or in trading. [5] The new

---

[4] The World Bank, Education in Sub-Saharan Africa: Policies for Adjustment, Revitalization, and Expansion, January 1988.

[5] World Bank sector work done in March, 1989, illustrates the employment problem: Using 1984 as a take-off date, it estimated that roughly 300,000 young people between the ages of 10-14 were ready to join the labor force or continue in education. It estimated that, by 1991, about 200,000 - 250,000 of these would have completed junior secondary schooling, while 50,000 would have proceeded to secondary schooling or above. These school leavers will be ready to enter the labor force. At the same time, the 1984 population census also shows that only 263,000 people were regularly

JSS curriculum is designed to introduce them to the skills they will need to fill these positions.[6]

Other strategies to improve the quality and efficiency of the system included in the reform are (1) upgrading teaching skills of existing untrained teachers and increasing the requirements for new teachers, and (2) developing textbooks and teaching materials and ensuring their distribution.

To improve the equitable allocation and efficient utilization of financial resources both inter- and intra-sectorally, the Government has introduced several measures. A task force in the Ministry of Finance and Economic Planning introduced recurrent expenditure norms to be used in preparation of the budget for 1989 which included: establishing levels of both teachers and non-teaching staff for each level and type of education; fixing maximum equipment and material allowances for each level and type of education; establishing maximum specification for textbooks to be financed through the revolving fund; and fixing maximum allocations of space per pupil for different types and levels of education.

Additional measures intended to improve the efficiency of educational financing include: 1) stimulating community involvement to help "their" schools, including participation in income generating projects; 2) designing low-cost "classrooms"--these would be standardized roofing modules that mobile teams would install and local communities would fill in the walls, doors, windows and frames; 3) freezing the number of teachers, until an audit of staff could be completed, to determine real need; 4) reducing the number of non-teaching staff at secondary and tertiary level institutions between 20-30 percent; 5) converting urban primary and middle schools to double shift operations; 6) increasing students' share in recurrent expenditures by

---

employed in the modern sector. As the sector paper emphasizes, the total number of jobs in the modern sector is only twice as high as the annual number of school leavers. The mission estimated that even with a labor attrition rate of 3% a year and a 5% growth rate, only 30,000 jobs would be available in 1991. It concluded that even if all these jobs were to be taken by JSS leavers, only about 15% would find regular paid employment.

[6] A new junior secondary school (JSS) pre-vocational curriculum is being introduced in order to expose 7th through 9th grade youth to prospective employment options.

charging a book use fee and charging the full costs of lodging and feeding at secondary and tertiary level institutions; and 7) developing resources for local production of primary-school textbooks.

To make planning more effective, and to increase the authority of decisionmakers, the Government plans to merge the planning and budgeting function into one division within the MOE (two separate divisions under the Ghana Education Service - GES). To provide support for the sector reform program, UNDP would provide technical assistance to the MOE for training to strengthen planning, programming, budgeting, monitoring and evaluation.

The Government has concluded that the existing curriculum was highly academic and not geared to the practical needs of primary and junior secondary school leavers, who would have to find jobs as farmers or skilled artisans and craftsmen in the informal sector. This was evident even in the early 1970s; the Government established a reform committee in 1973 to examine how the educational system could better provide Ghanaians with the skills necessary to aid in country development. In 1974 the committee issued a reform package detailed in "The New Structure and Content of Education." Bank sector work observed that this was not implemented due to.. "a combination of influential vested interests and the economic decline of the late 1970s..." The Government adapted the earlier reform effort to meet the current economic situation and financial realities, and this served as the basis for the current reform. In order to circumvent the special interests that undermined the earlier attempt at introducing reform, the Government decided to introduce them nationwide with less than a year's lead time (recognizing that this approach would create problems that would have to be resolved during implementation).

In sum, the reforms are intended to concentrate an increasing proportion of available educational resources on the nine years of basic education. The reform is to be financed mainly from the restructuring of the education system and the elimination of 5 grade levels as well as from the cost-savings realized from improving the efficiency of basic education, as noted above. The government also plans a gradual reallocation of educational resources from university to basic education.

This new approach aims to provide children with 1) literacy skills in their own language, a second Ghanaian language and English; (2) practical courses in modern farming and familiarity in using tools and a manual dexterity (though

it should be stressed here that these are pre-vocational courses, and intended to make students aware of the possibilities of earning a reasonable living and introducing them to the type of skills that are involved; (3) practical mathematical skills; and (4) positive attitudes to hard work and national development. "Ghana's Country Paper on Development of Education, 1986-88 puts it succinctly" "The reform is intended to stimulate a spirit of realism and a sense of what might reasonably be achieved given the financial resources available."

STATUS OF THE REFORMS

The World Bank supported the introduction of the Government's education reforms in the form of an education sector adjustment credit in 1987. The comprehensive nature of the reform has attracted financing from other international donors, including grants from UNDP, Switzerland, Britain, Norway, Canada and concessional lending from the OPEC Fund. Until recently, international assistance had all but dried up in Ghana.

One of the ultimate goals of the reform is to better prepare Ghanaian youth for employment in agriculture and the non-formal sector. Whether it realizes this objective will not be known for several years. However, it can safely be said that the Government has been successful in (1) increasing access to primary education while (2) maintaining education's share of the budget (through decreasing unit costs). Details of the progress of the reform as outlined in Bank documentation is given below.

Improving Pedagogic Efficiency. The JSS curriculum has been elaborated and introduced into schools, and teachers' guides for science instruction and for practice in the use of handtools have been developed. Almost all new JSS schools have the new texts, sciences kits, science tools and stationery. (In fact, educational expenditure on non-salary items increased from 2.8 percent in 1986 to 3.1 percent in 1987; the planned expenditure for 1988 increased to 8.5 percent.)

A National Planning and Implementation Committee was set up for the training of JSS teachers, and took on responsibility for the implementation of the JSS program. A modular post-middle school teacher training program for upgrading untrained teachers has been adapted to cater to "O"-level certificate holders. In addition, since the Government has decreed that all untrained teachers must have

received upgrading training by 1995 or face dismissal, the Ghana Organization of Teachers is setting up night classes to assist in skills upgrading. In order to attract good candidates into the teaching profession, allowances have been introduced for teachers in training. Since many JSS teachers will be teaching double shifts, a double-shift allowance of 60 percent of base pay is to be allocated.

Implementation of the vocational curriculum has proven to be somewhat problematic. First of all, there exists a considerable degree of misunderstanding regarding the whole concept of vocational skills, and how they should be taught. Second, in the short amount of time since the reform has been underway, there have not been enough technical teachers trained to teach these courses.

Budgeting, Cost Savings and Cost Recovery. The reform program is reported to be successful in that enrollment (intake) increased by 11.8 percent in 1989 (above the original plan of 5 percent) while the education budget still accounts for only 3 percent of GDP, as it did previous to the reform. Overall, unit costs at the primary level have decreased from an already low figure of US $25 in 1984 to US $21.60 in 1988. They have increased slightly for secondary schooling, from US $119 in 1984 to US $129.6 in 1988. These figures are quite impressive, given that teacher salaries were raised in 1986, just prior to the reform. Cost savings were realized in several areas, including eliminating unnecessary staff, introducing user fees for textbooks, and eliminating the feeding subsidy at the secondary and tertiary levels.

A 1986 census of all students and of both teaching and non-teaching staff in second cycle institutions uncovered many irregularities, including the existence of an excess of non-teaching staff above the number of established posts. In response, a reduction of 8,500 non-teaching staff at the secondary level has been achieved. There is also a freeze on the number of teachers' posts, which is effected by reducing the output from Post-Middle Teachers' Colleges. This insures that the number of new entrants does not exceed the number leaving the service through retirement or natural attrition, and also serves to control the employment of untrained teachers.

The MOEC has introduced a textbook-user fee from primary class 3 upwards (this is 120 cedis or about US $.43 per student); the Canadian International Development Agency (CIDA) is providing funding for paper to print texts. Pupils are also responsible for all stationery items and exercise books sold through the schools. A revolving fund has been

opended solely for the future provision of textbooks and stationery to first-cycle schools.

At the secondary and tertiary levels, there has been a substantial decrease in Government subsidy. Secondary and tertiary students pay the full cost of texts (for secondary students, this is about 3,000 cedis or US $10.80 per student) and exercise books. The feeding subsidy for secondary and tertiary students has been totally eliminated (this is a savings of US $.36 per student/per day for the former and a savings of US $.72 per student/per day for the latter). The Government has not made much progress in eliminating the boarding subsidy, although it has decreed that no new boarding schools be constructed, and some boarding facilities have been converted to day facilities.

Community Involvement. Previous to the reform, many communities had lost interest in assisting education. The reform has served to infuse a new energy into these communities, particularly in the southern half of the country, where parents have historically been more tuned in to the need for education. Part of the newly generated interest is attributable to the fact that the reform has been widely publicized and promoted at the very top. Before the reform was introduced, the Government staged a national publicity campaign, informing parents of the nature and advantages of the program. The reform program has been promoted by Flight Lieutenant Rawlings himself; he has been so strongly supportive that the JSSs have come to be knows as "Jerry's Special Schools." Regarding community participation, a World Bank tranche review notes,

> "The level of community participation is laudable. The contribution is mainly in facilities provision and ranges from raising funds to build or renovate classrooms and workshops to providing furniture, materials and labor. It is obvious that the efforts at mobilizing the community through the Kumasi seminar, involving the Ghana National Association of Teachers, The Committee for the Defence of the Revolution, the National Service Scheme, and Regional Consultative Councils, have been highly successful. The District Implementation Committees created have been actively involved in raising community action. They are, in addition, concerned about the quality of education provided, and about teacher quality and example within the community."

At the primary level, communities are responsible for school construction. The new modular roofing scheme (wherein the Government provides pre-fabricated roofs, and the

community builds the school around them) has made it easier for the communities to provide schools in their areas. At the Junior Secondary level, communities have willingly met their obligation to provide workshops. On the other hand, schools and their communities have not been too successful in developing income-generating schemes. This is attributable in part to the fact that teachers are not prepared for their roles as businessmen in this context.

University Rationalization. A committee was set up in December 1986 to provide the necessary basic information and policy options to enable the Government to formulate a comprehensive medium-term university sector development plan for Ghana. Some of the measures proposed to decrease unit costs include: (1) consolidation of non-viable programs and departments; (2) implementation of new staffing and other norms (e.g. higher s/t ratios); and (3) a gradual departure from residentiality. The Government is approaching university reform with caution. Though it has in theory eliminated subsidies to tertiary students, at the same time it has granted loans to all students at very generous terms.

LESSONS OF THIS EXPERIENCE FOR OTHER COUNTRIES

The initial success of the Ghanian reform program is attributed to several key factors:

- a core group of dedicated professionals (both country officials and members of the international aid community) are committed to seeing the reform through.
- International aid efforts have been well coordinated under the leadership of the World Bank. (In Burkina, a lack of coordination amongst various aid agencies led to much overlap and misunderstandings during implementation of reform in the 1970s.)
- The Government implemented the reform nationwide within a short period of time so as to circumvent any attempts to kill it; there were no pilot projects. It is dealing with problems as they arise. As brought out above, the authorities had introduced a reform program in the 1970s very similar to the current program that "influential vested interests" were able to derail.
- The reform provides for only one type of middle school (the junior secondary school) education, which includes academic as well as pre-vocational subjects. There is not a dual system wherein some

students attend all-academic schools and other are "relegated" to JSSs.[7]

- The reform has been well marketed. As indicated above, the Ghanaian Government widely publicized the nature and advantages of the proposed reforms and Flight Lieutenant Rawlings has taken a special interest in the reform program and has done what he can to advance it.

- Authors of the reform have paid heed to administrative constraints. The present reform program has stretched managerial capacity at all levels. Therefore, the authorities are waiting before introducing a much-needed literacy campaign. They currently have introduced a few pilot programs for non-formal education, in preparation for a major campaign in 1993/94.

---

[7] This contrasts to a similar reform effort in Burkina Faso in the 1970s. Burkina attempted to introduce a system of rural nonformal education for young people between the ages of 12 and 14 which would provide basic literacy and numeracy as we all as modern agricultural methods. This was a terminal program. At the same time, Burkina maintained a formal primary system which would provide a select few with the option to pursue secondary and higher education. In the end, this dual approach served to undermine the reform. Parents felt that the rural schools were inferior to the formal schools, and did everything possible to ensure their childrens' education in the formal system. This has not been a problem in Ghana as the Government has made clear that all students must pass through the junior secondary schools before being admitted to secondary school study. Overall, parents have accepted the new system, although the response has been greatest in the southern region, which has historically shown more concern with education.

SENEGAL CASE STUDY

OVERVIEW OF THE EDUCATION SECTOR[8]

Prior to the introduction of reform in Senegal, the education system consisted of (a) a six-year cycle of primary education (along with parochial and Koranic schools); (b) a four-year lower secondary cycle followed by a three-year upper cycle in general and technical education; and (c) higher education through two- or four-year programs at the University of Dakar or at specialized training schools. Three ministries shared responsibility for administration: the Ministry of National Education (for primary and secondary levels), the Ministry of Higher Education, and the State Secretariat for Technical Education and Vocational Training. Professional and nonformal education/training was also provided directly by about 11 ministries.

Fueled by a rapidly growing population (3 percent per annum), the enrollment in primary education has practically doubled over the past 10 years (Mondon, p. 24). In 1985, the net enrollment rate for primary education was 39.6 (51.9, gross); for lower secondary it was 11.7 net; for upper secondary, it was 4.5 net; and for higher education it was 2.0 net. The education budget accounted for 23.2 percent of the Government's recurrent budget and 5 percent of GDP in the 1985/86 school year (including education expenditures by ministries outside of the MEN). In 1985, education's share of the budget was apportioned as follows: primary received 46.3 percent, general secondary received 17.4 percent, technical secondary received 5.9 percent, teacher training received 1.8 percent, higher education received 18.9 percent, administration and other categories received 7.9 percent, and private education received 1.8 percent. The government provided the majority of financing for public education (87.6 percent), and community and family contributions accounted for about 3.5 percent of educational expenditure. Private schools accounted for 6.1 percent of educational expenditure.

---

[8] This section drawn from The World Bank, "Staff Appraisal Report: Primary Education Development Project," September 9, 1986.

Access and Equity. In 1983, Senegal ranked in the bottom third of low-income African countries in regard to adult literacy (28 percent) and primary enrollment ratios (51.9 percent gross, 39.6 percent net, as noted above). The World Bank estimated in 1986 that, given the primary school-age population growth rate of 3 percent, and if educational expenditure retained its share of the recurrent budget, the net enrollment rate would decline to 38 percent by the year 2000. In addition, educational opportunity was unequally distributed, with a strong urban bias (over 60 percent of primary school-age children lived in rural areas, though they only accounted for 37 percent of enrollments). Rural children had fewer facilities available to them and, due to this, intake in some areas occurred only once every second to third year.

Low Quality and Internal Efficiency of Primary Education. The internal efficiency of primary education was low and declining. The achievement rate for the primary-level completion examination fell from 59 percent in 1966 to 42 percent in 1983. Factors that were said to adversely affect the quality of primary schooling included:

(a) inadequate teaching skills;

(b) an overly-academic curriculum and an inadequate capacity for developing appropriate teaching methods and materials;

(c) an inspectorate staff without the physical means to conduct school visits, without up-to-date knowledge of innovative classroom techniques to assist teachers, and without the authority to impose sanctions for unsatisfactory teacher performance;

(d) shortages of textbooks and teacher guides that, even when available, were not relevant to children's environment and learning requirements;

(e) a serious overcrowding of urban classrooms (in 1983/84, 27 percent of urban classrooms had between 70 and 120 students); and

(f) inadequate physical facilities, with 50 percent of the classrooms lacking a sufficient number of student benches and about 25 percent of the classrooms in a state of disrepair.

Educational Planning and Management. Personnel shortages and inadequate training in key MEN administrative

agencies prevented staff from performing their responsibilities.

ECONOMIC CONSTRAINTS AFFECTING THE EDUCATION SECTOR

Financial Constraints. The education budget has grown rapidly over the years; in 1965, education recurrent expenditure as a percentage of GDP was less than 1 percent; by 1985 this had climbed to over 5 percent. Since 1975, the percentage of government expenditure on education has not dipped below 20 percent. In 1986, Senegal had by far the highest primary education unit costs of all low-income African countries as defined by the World Bank (US$ 117) due mainly to the country's relatively high teacher and assistant teacher salaries. Early studies of the education sector revealed that teacher and assistant teacher salary levels represented 12 and 9 times, respectively, the 1980 GDP per capita, and noted the strong political position of the teachers' unions. Other factors contributing to high unit costs included low student/teacher ratios in rural areas, and excessive administrative staff/teacher ratios. Further, construction costs for classrooms were high. In addition, there were high subsidies and unit costs at the post-secondary level. In 1985, university fellowships constituted 25 percent of the higher education budget and indirect subsidies (meals, lodging, transport, etc.) constituted 9 percent of this budget. Sixty percent of all university students received fellowships or financial assistance. Over 50 percent of the fellowship budget was awarded to about 2,000 students for study abroad, the per student cost of which is five times that at the university. Internal efficiency of higher education was also low: only one out of five students graduated and on average 7-12 years were used to complete the four-year cycle. Finally, public service employee training institutions (which include teacher training colleges) had very low student/teacher ratios, which contributed to high unit costs.

Macroeconomic Constraints. Chronic drought, declining terms of trade, increasing oil prices, falling export prices (especially groundnut prices), rising interest rates, and poor domestic financial and investment policies led to severe economic problems in the early 1980s. The World Bank Country Economic Memorandum of November 5, 1984 states, "An excessive share of public investment was used for social purposes, to maintain consumption patterns of the urban elite or to extend public control of the economy, rather than to create new productive capacity. The overwhelming bias of government education policy in favor of generalist higher education

neglected necessary scientific and technical manpower development and, especially, primary education, while further straining the budget." (p.3) By 1980, all new capital formation was being financed entirely with foreign resources.

POLICY RESPONSES TO SECTORAL PROBLEMS AND ECONOMIC CONSTRAINTS

The proposal for educational reform began in 1981 when the government convened the "Etats Generaux" to discuss the state of education in the country. The initial work was developed and detailed by the "Commission Nationale de Reforme de l'Education et de la Formation" (CNREF), which submitted its proposals to the Government in mid-1984. The CNREF was divided into three commissions. The first dealt with the philosophy and policies of education, and determined that education should cover ages 3 to 16 with a common content for all during this period. It further determined that education should be more oriented toward the society in which it was set. Proposals to effect this were introducing a degree of practical work into the curriculum; using national languages as a medium of instruction; promoting Arabic as a language in all schools; and promoting religious education as a way to improve the ethical and moral content of education. The second commission addressed the use of resources and introduced measures that would allow all parties involved in education to participate in the implementation of the proposed reform, and proposed a rationalization of resources (although this was not detailed in any way). The third commission addressed the issue of underqualified educational personnel. It proposed a series of measures aimed at producing high-quality teachers, which would have passed through adequate pre-service and in-service training courses staffed by competent teacher trainers.

Educational reform was set against the backdrop of macroeconomic reform. The government initiated a program of Structural Adjustment in 1980 in response to the economic crisis. The primary goal of the program was to improve management of public resources through sectoral adjustment operations designed to ensure more efficient allocation and use of resources. The World Bank reviewed current budgetary expenditure in Senegal in 1980 and concluded that, "A more efficient allocation of current expenditures would...free more resources for maintaining and operating existing assets. [Further,] there are important potential gains in the areas of improved procurement policies and practices, improved matching of staff with the tasks at hand, additional

incentives for budgetary savings, design of less-costly-to-operate investments, cost-recovery schemes."

Within this framework, the education sector launched a reform effort, the "Ecole Nouvelle" (the new school), drawing from the earlier work of the CNREF. The fundamental aim of the reform is the creation of an education system that is equitable, efficient and responsive to national development needs. The main objectives are to: (a) assign top priority to expanding primary education with the eventual goal of universal primary education (ages 7-12) by the year 2000 and an intermediate target of 60 percent by the end of the Seventh Plan period in 1989; (b) utilize existing physical and human resources more efficiently; and (c) develop the institutional structure to improve the quality and relevance of education. The reform also advocates curricular changes intended to adapt educational content to reflect more closely the culture, heritage and realities of the country. These include: (a) the introduction of national languages into education; (b) the introduction of a polytechnic orientation to the curriculum through the integration of productive work in educational establishments; and (c) the introduction of moral and religious education in the curriculum. Under this new system, education has the following structure: 3 years of preschool (ages 3-6), a polyvalent cycle (ages 7-16) and a secondary or professional cycle of 3 years. Polyvalent education is divided into four stages (ages 6-9, 9-12, 12-14, and 14-16).

Immediate Objectives of the Sectoral Reform

The most immediate objective of the Government's education sector reform program is to increase primary school enrollments through restructuring the financing of education. The Government hopes to achieve this objective through:

(1) lowering unit costs in education through making more efficient use of teachers and facilities;

(2) reducing primary school construction costs; and

(3) containing education expenditures at post-primary levels -- funds made available from these savings would then be reallocated to primary education. The Government's goal was to maintain the share of the sector budget within its recurrent budget at the SY 1985/86 level.

The particular means of achieving these reforms were

articulated in a World Bank Sectoral Loan and included:

1. Lower average unit costs per student by 7 percent through:

   (a) recruiting candidates into teacher training programs at an "instituteur adjoint"/"instituteur" ratio of 4:1 from the 1986/87 school year onward. The ratio at the time of implementation in 1985 was 0.89:1. This was expected to lead to a 7 percent reduction in the average cost per student. At the same time, the content and duration of pre-service training would be revised, and more frequent teacher upgrading programs would be introduced, in order to ensure the quality of primary education.

   (b) redeploying 400 administrators at inspectorates and secondary schools into primary teaching.

   (c) introducing double-shifting systems in urban primary schools and multi-grade systems in rural areas. Overcrowded classrooms for grades 1-4 would be broken up into two shifts of 20 hours per week each, in place of the previous 27 hours per week. The school year would be extended to compensate and specialized curricula would be developed. This was expected to reduce the new student per place costs by 50 percent.

   (d) increasing student/teacher ratios in teacher training colleges from 7:1 to about 15:1 by consolidating two colleges prior to SY 1987/88, and two more colleges prior to SY 1988/89. The redundant staff and facilities could be used for other purposes. This was expected to reduce the total primary teacher training budget for 1988/89 by 15 percent.

   (e) increasing student/teacher ratios and reducing operating costs of specialized civil service training schools.

2. Reduce primary school construction costs.

   The government's plan was to employ an intermediate technology of fired brick and/or ram-pressed cement-earth brick construction as an alternative to conventional construction methods. This intermediate technology is

preferable because it (i) would reduce high unit costs associated with repair and maintenance of existing schools and with imported materials (ii) would reduce capital costs because it is labor-intensive; (iii) would develop construction technology and services at the regional level; (iv) it is more suited to the climate; and (v) it would expand community participation in construction programs. The government would facilitate construction of these classrooms mainly in outlying rural areas. Under this program, communities would provide the local materials and contribute 50 percent of the unskilled labor. It was estimated that this would reduce the per student place cost by almost one-third.

3. Contain expenditure at the post-primary level by.

(a) reducing the fellowship budget in real terms from its SY 1985/86 level by 8 percent in SY 1987/88 and 3 percent p.a. from SY 1988/89 through 1994/95. This reduction would take place mainly in overseas fellowships.

(b) establishing a cost-recovery system in higher education. This was to be introduced only after small-scale experimentation.

(c) reducing subsidies to the Campus Services budget by 50 percent by 1994. Approaches here would include cost-recovery methods and privatization of certain services.

4. Limit recurrent expenditures.

Establish ceilings on budgetary growth rates for recurrent expenditures of central administration (MEN), secondary and higher education. These would be limited to between 1 percent and 1.5 percent.

STATUS OF THE REFORMS

Senegal has chosen to implement its reform incrementally.[9] First, a minimum enrollment ratio target of 60 percent was set for the 7-12 age group at the end of 1985-89. Second, curriculum reform was to be introduced on an experimental basis, including the introduction of national languages and productive work into selected experimental schools. A method of evaluation was to be developed in order to review the results of the piloting, and to make the necessary changes before nationwide implementation of the reform. Third, the government planned to experiment with double-shifting and multi-grade teaching for the school years 1987/88-1988/89; this approach would then be implemented nationwide starting in the 1989-90 school year. Fourth, the redeployment of school administrators into primary teaching would take place over the space of the school years 1986/87-1989/90. Fifth, student teacher ratios would be increased in teacher training colleges through consolidation of two colleges prior to SY 1987/88 and another two prior to SY 1988/89. Sixth, an evaluation of 50 experimental classrooms constructed with the new technology would be made to determine the suitability of design, method, materials, level of community participation, time and cost; this would be followed by the construction of 350 classrooms over the years 1990-1994. In all, the government and World Bank planned nine studies including three to identify areas for cost efficiency and savings in primary, secondary and tertiary education, one to determine optimum enrollment growth rates at each level of education and establish budgetary growth ceilings, one related to the introduction of a student loan scheme, and one focussed on the rationalization of training programs for the civil service. The findings of these studies would then be incorporated into the sectoral adjustment program.

Thus far, the World Bank has completed one official review of the reform efforts, in June of 1988. Overall, it found that progress has been quite good:

(1) Regarding lowering unit costs:

(a) The instituteur adjoint/instituteur ratio was increased. This ratio grew from 89:100 in 1986 to 127:100 in 1988.

(b) The MEN successfully redeployed administrators to primary teaching (Mondon, p. 41), an increase of 43

[9] In contrast, Ghana chose to implement its reform nationwide and in a rapid fashion to preempt opposition,

percent over two years. By June of 1988, 1,260 administrators had been redeployed into primary teaching (860 over the planned 400 to be redeployed) (World Bank Supervision report).

(c) Double-shifting (one classroom with one teacher who successively teaches two different classes) is of the key features of the educational reform program in Senegal.[10] It was introduced in 712 urban schools (substantially more than the 75 planned) and multi-grade teaching was introduced into 142 schools (over the target of 25). As a result, in 1988, 14 percent of students enrolled in primary school were in double shift classes and 1.4 percent were in multi-grade classes. The World Bank estimated that this measure alone offered access to some 40,000 pupils, with savings of 580 teachers (5 percent of the teaching force) and 786 classrooms. (More below on double-shifting). The redeployment of administrators along with the introduction of double-shifting brought about a primary enrollment increase of 11 percent (56,000 pupils) between 1985/86 and 1987/88, with only a 2 percent increase in the teaching force. (supervision report, annex 1).

(d) Student/teacher ratios in primary teacher training colleges were modestly increased from 7:1 to 8:1. As the government planned, it closed down three teacher training institutions, but enrollments were not increased substantially to reach the enrollment ratio target of 15:1. This is mainly due to a hiring freeze in the civil service (mandated by the Structural Adjustment Program) which prohibits the government from recruiting new teachers. (The World Bank has obtained an agreement from the government to transfer some budgetary posts from other government ministries to education to meet this need).

(e) Two civil service institutions (Centre de Formation et de Perfectionnement Administratif and l'Ecole Nationale d"administration et de Magistrature) were joined in October of 1986.

---

[10]Because it is applicable to other developing countries with severely overcrowded urban classrooms and constrained sectoral finances, we have included a section, following this one, that focuses on the implementation issues and outcomes of double shifting.

2. Regarding the experimental school construction program:

The introduction of double-shifting in urban areas was so successful that new classrooms were needed to meet the growing enrollments in fifth and sixth grades (these meet on a single shift basis, after four years of double-shifting); therefore, the classroom construction program was refocussed somewhat on the urban areas (the 400 total planned classrooms are being divided between the urban and rural areas). Thus far, 100 classrooms have been built in urban areas, and 125 in rural areas. For 1988, in the urban areas, building costs were brought down from 7 million FCFA per classroom to 4 million FCFA per classroom. In these urban areas, community support was not as great as was hoped, and large contractors performed most of the construction work. In the rural areas, the average cost per classroom was 2.4 million FCFA. The rural construction program has been "readjusted" somewhat since it was introduced a few years ago, in response to administrative and technical constraints. Presently, there are two options which communities can pursue -- (1) they can hire small local contractors to perform most of the work, or (2) they can take responsibility for the construction themselves; here, the government provides them with construction materials and light technical support and they are totally responsible for all aspects of construction. The latter approach is, for obvious reasons, faster to implement.

3. Regarding containment of expenditure at the post-primary level:

(a) The government reduced the scholarship budget by 2.5 percent in real terms instead of 8.0 percent as planned. The government made this decision in large part to appease student unrest on the campus (which was unrelated to the reform).

(b) Cost-recovery experimentation has not yet taken place.

(c) During the period 1985-1988 the government reduced expenditures for campus services by the targeted 14.5 percent, and operating expenses of Dakar University grew only at the planned 1.3 percent.

4. Regarding recurrent expenditure limitations:

The government has yet to place a ceiling on budgetary growth rates for recurrent expenditures for central administration (MEN), secondary and higher education.

The Key Policy Innovation: Double-Shift Urban Schools

The success of double-shifting has important implications for other countries searching for ways to contain costs. This pilot program was first introduced in Senegal in 1982, in 61 classrooms. The method employed at that time was to utilize one classroom for two separate classes each day. There was a separate teacher for each class. In this way, the use of classroom space was optimized. The World Bank evaluated this system after two years, and concluded that educational quality was quite good. In fact, compared to the results in traditional classrooms, students in the new system generally tested higher in reading, writing and math. This fact was attributed in large part to the substantially lower student/teacher ratio.

The main problems identified at this time included:

(a) Parents were not informed and sensitized to the new system; they reacted negatively since it disrupted their regular schedules;

(b) Choice of the classrooms was left to the primary education inspectors without any precise criteria for selection; and

(c) Teachers involved were not provided with training and materials for double-shift teaching, and they received little or no supervision afterwards in the majority of the schools.

Due to the success of double-shifting during this initial pilot program, the government decided to introduce the new system in urban areas nationwide in grades 1-4. (At the same time it planned to introduce a multigrade system in rural areas where student/teacher ratios were unacceptable low). Its goals were to increase access to education, improve the efficiency of education by eliminating overcrowded classrooms, and improve the efficiency of teacher and classroom utilization, thereby reducing unit costs. It planned to implement the program in two phases: an experimental phase covering 1987/88-1988/89 followed by large-scale implementation in appropriate classes starting in

the 1989/90 school year.

The National Pedagogical Institute (INEADE) directed implementation of Phase I activities. It formed a team of representatives from the Teacher Training Division of INEADE, the Directorate of Studies, Human Resources and Planning, a senior instructor from one of the teacher training colleges, and one departmental inspector.

The major change in the new approach to double-shifting is the use of one sole teacher for both the morning and afternoon sessions. Teachers under this system now teach for 40 hours per week instead of the previous 27 hours and receive an additional 25 percent of their base salary as compensation. The team adapted the curriculum and developed a pre-service training program of seven days for teachers.

The government seized the opportunity to expand access to education more rapidly and introduced double-shifting into a total of 712 classrooms, almost 10 times more than the 75 classrooms originally planned. This meant that not all teachers were able to participate in the specialized training program before they began their teaching duties, nor did all receive the necessary teacher guides for the new curriculum. Most importantly, the accelerated introduction of double-shifting did not allow the government to properly address the negative image of this system among parents and teachers.

A French consulting firm, SODETEG, in concert with a committee formed by the INEADE, evaluated the progress of the first phase in early 1989. The results of this experimentation were, again, quite favorable. The study was made of 32 classrooms: 16 in double-shift (divided into cohort A and cohort B) and 16 in single-shift classes. The major findings are detailed below.

(1) The double-shift classes did not experience a drop in quality; tests covering math and French skills showed that students under double-shifting performed on par with those in single-shift classes;

(2) Students under the double-shift system in cohort A performed better on the test of French and math skills than those in cohort B; this was partly explained by the larger number of repeaters in cohort B.

(3) Parents and teachers continued to think poorly of the system; most thought that the standard of education under the double-shifting system was weak.

Less than 50 percent of parents had received any prior information regarding the new system;

(4) Test results were higher in classes taught by assistant teachers (*instituteurs adjoints*) than in those classes taught by full teachers (*instituteurs*) in both double- and single-shift classes. This is particularly important given the government's goal of training more assistant teachers in relation to full teachers, in order to reduce salary costs.

(5) Not surprisingly, students who had French or math textbooks performed significantly better on the test, especially those students in double-shift classes.

Phase II was to be implemented at the beginning of the 1989/90 school years. For this phase, it is expected that more teachers and headmasters are to be trained in double-shift (and multi-grade) teaching methods. These methods are also to be incorporated into the pre-service training curriculum at the teacher training colleges. Finally, double-shift and multi-grade systems are to be implemented nationwide.

LESSONS OF THIS EXPERIENCE FOR OTHER COUNTRIES

- One of the goals of structural adjustment is to make better use of existing physical and human resources. The first strategy in the education sector in Senegal was to generate efficiencies through the elimination of waste. The Government worked to achieve efficiencies by redeploying redundant administrators (as of 1988, 12,060 education administrators were returned to the classroom) and consolidating teacher training and civil service training institutions.

- The Government of Senegal achieved savings while expanding the provision of primary schooling by hiring assistant teachers with starting salaries well below those of the traditional teacher. These assistant teachers receive a shorter training program than traditional teachers. An important recent evaluation by a French consulting firm finds that student achievement under assistant teachers is superior than it is under traditionally trained full teachers. The assistant teacher program is so successful that new teacher appointments in Senegal

are more likely to be assistant than traditional teachers.

- Senegal's reform program was initiated on an experimental basis. The Government felt this was the best way to test the program and work out any problems before extending it nationwide.

- The Government of Senegal, in conjunction with the international donor community, developed a cost-effective means of responding to the serious problem of school overcrowding in urban and suburban areas. With its new policy of double shift teaching in cities and towns, the education ministry has reduced class sizes from 70 to 100 to more manageable numbers in the order of 40 to 50. This achievement was attained at a relatively low cost: teachers in double shift schools, who are required to teach two classes per day for a longer school year, receive a 25 percent salary increase.

PHILIPPINES CASE STUDY

OVERVIEW OF THE EDUCATION SECTOR

Relative to other developing countries, the Philippines has attained a high level of educational development -- gross enrollment ratios in 1980 were over 100 percent in elementary school, 65 percent in secondary and 26 percent in tertiary education. Enrollments are thus considerably higher than the averages reported for developing countries -- 75 percent at elementary level, 23 percent at secondary level and 7 percent at tertiary level. The educational coverage of the Philippines schooling system is particularly impressive when compared with that of countries at comparable levels of development -- enrollments rates are almost twice as high and actually exceed the rates reported in many Latin American countries with higher levels of per capita GNP.[11]

The Philippines has a long history of universal participation at the elementary level. As early as 1955 gross enrollment ratios at the elementary level reached 90 percent and by 1965 reached 107 percent [12]. In addition to this accomplishment, the Philippines managed to achieve a high representation of female students across all levels of education. Female enrollments at elementary level are approximately equal with those of males and exceed male enrollments at secondary school. Dropout and repetition rates in elementary grades are also significantly lower for females.

Two basic structural strengths of the Philippine education system have been important in ensuring this broad coverage -- the predominance of central Government support and funding for elementary level education and the extensive involvement of the private sector in the provision of secondary and higher education. Historically, the Government has focused on achieving universal primary provision and has relied upon the private sector to respond to demands for further education. Levels of private provision have been extremely high, relative to countries elsewhere. Private

---

[11] World Bank. December, 1988. The Philippines Education Sector Study.

[12] Gross enrollment ratios indicate the proportion of total school enrollments (including the under- and over-aged) at a particular level compared to the population in the age group specified for that level.

secondary school enrollments reached a peak 70 percent of the relevant age group during that 1960s, but has leveled off since then. In 1986, 40 percent of secondary and 85 percent of tertiary enrollments were in private schools.[13]

Private sector provision of secondary education permitted the Government to respond more effectively to demands for universal primary education; available funds were directed to the expansion of the primary sector rather than to higher education levels. This practice has reportedly ensured that public subsidization of the different educational levels is equitable and yields appropriate rates of return.

KEY SECTORAL PROBLEMS

The early achievement of universal primary participation allowed central Government to turn its attention to issues of school quality and internal efficiency. Concerns began to be expressed in the mid 1970s regarding the low levels of student learning and social inequities at the primary level, particularly in terms of the poorer quality education provided in rural areas and the lower achievement rates of students from poorer households. It was reported, for example, that in 1987, 89 percent of students from households with annual incomes exceeding P30,000 completed elementary education as compared to 57 percent from households with incomes of less than P 10,000. Repetition and dropout rates have been, and continue to be, high with only 63 percent of entering students in year one completing the elementary cycle. Dropouts are concentrated among socioeconomically disadvantaged students. Education reforms designed to improve these factors have been implemented since the early 1980's and have encompassed a variety of innovative approaches.

Efforts to improve the quality of primary education have, however, been threatened by severe budgetary constraints arising in the early 1980s. The financial constraints have occurred at a time when the Government has also begun efforts to make secondary schooling free and assume funding responsibilities for all local secondary schools. It has thus become a priority that the Government ensure the optimum use of scarce public resources.

---

[13] This section draws its findings from the World Bank, Philippines Education Sector Study, December 1988.

ECONOMIC CONSTRAINTS AFFECTING THE EDUCATION SECTOR

Economic conditions deteriorated sufficiently in the early 1980s that severe current account and budget deficits resulted in the introduction of an adjustment program in 1983. Economic restraints resulted in a substantial decline in public spending on education. Per capita GNP in 1985 fell to its 1975 level and social sector expenditures were consequently reduced to 2.4 percent of GNP -- a figure substantially below average expenditures in other middle-low income countries which average expenditures of 4 - 5.9 percent of GNP. Public recurrent expenditures on primary education also declined as a percent of GNP from 0.9 percent in 1980 in 0.8 percent in 1985. This amounted to reductions in public recurrent expenditures per primary student from US$ 6.4 to US$ 4.3, in real terms, over the same period [14]. The sharp reduction in education expenditures, measured as a percentage of GNP, is evident with 1985 expenditures amounting to only 1.3 percent of GNP. It is important to note that these reductions in expenditures occurred despite continuing increases in student enrollments resulting from population increases of 2.5 percent.

In spite of existing budgetary constraints, the new Government in 1986 committed itself to increased educational spending and attempted to bring real spending on education back to 1982 levels. Although these efforts were facilitated by a resumption in economic growth in 1986, the Government effectively increased educational spending through the redistribution of funds from other sectors identified as unproductive investments. Hence, considerable resources were redirected to the education sector subsequent to the privatization of unproductive State-owned enterprises and by 1987 appropriations for education accounted for more than 20 percent of the total recurrent budget of the Government. However, per pupil spending remained below the 1982 levels due to continuing increases in enrollments. Participation rates, however, have increased each year since 1985/86 and teacher/pupil ratios have been maintained at a low level of 1:32 in elementary schools. Cohort survival rates and

[14] Lockheed, Marlaine and Adriaan Verspoor. 1989. Improving the Quality of Primary Education in Developing Countries, Washington D.C. World Bank.

dropout rates have shown marginal improvements,[15] although increasing disparities in spending between urban and rural regions are reported.[16]

POLICY RESPONSES TO SECTORAL PROBLEMS AND ECONOMIC CONSTRAINTS

Long-standing policies in the Government sector which emphasized public investment in elementary education and which encouraged private sector participation in the provision of higher education have enabled the Philippines to reduce the impact of the fiscal austerities on the education sector. The central Government confronted the fiscal constraints and the possible effects on the education system from two fronts. First, a number of innovative methods have been introduced in raising additional funding for elementary education. Second, the Government has paid increasing attention to the improvement of the internal efficiency of elementary schools, thereby seeking to use existing resources more efficiently.

Changes in Funding Policies

The long-established practice of encouraging private sector provision of secondary and higher education meant user fees and local taxes, earmarked for education, were institutionalized and recognized by the population as an acceptable means of financing education. Consequently, the Government has, since the early 1980s, sought to increase the contribution of local funds in the provision of elementary education. Attention has been paid to the need for increasing decentralization of functions such as budgeting, resource allocation and procurement, although they continue to be highly centralized activities. Some of the funding sources traditionally used in financing secondary education have been tapped to provide funds for elementary schools as well. One such source is a property tax,the Special Education Fund, the proceeds of which are earmarked for

---

[15] Tan, Alicia J. January, 1989. A National Report on Development in Philippine Education since 1986. Prepared for the Forty-first Session, International Conference on Education, UNESCO: Geneva.

[16] Zuckerman, Elaine. 1989. Adjustment Programs and Social Welfare. World Bank Discussion Papers No. 44. Washington D.C.: World Bank.

community schools. Taxes and duties on certain cigarettes and imported tobacco have also contributed to local funding.

Government efforts to encourage local communities to play a greater role in the funding of elementary education have met with considerable success. In 1988 two thirds of public primary schools had some sort of extra-budgetary funding from local sources. Approximately 19 percent of schools relied on local contributions for 5-25 percent of their expenditures and for a further 7 percent, local funding amounted to more than 25 percent of their budget.

This effort to decentralize funding has been successful not only in terms of raising additional financial resources, but also in terms of increasing the cost-effectiveness of the schools. A study of schools which rely more heavily on local sources of funding reports that these schools use their resources in a more cost-effective manner -- textbooks per student and quality of school building (as measured by the percentage of the floor area in good condition) appear to increase with the degree of local financing. Most importantly, however, pupils in these schools are found to perform better on achievement tests than schools which are more dependent on funding from the central Government.[17]

The central Government also introduced measures to encourage greater efficiency in school administration. The Program for Decentralized Educational Development (PRODED), first introduced in 1981, provided the basis for revising the method used in allocating Government funding to different regions. Previously, the regional education budgets had been appropriated using a standard formula based on enrollment expansion. This approach, however, failed to account for varying standards of student performance, differing participation and survival rates across regions. PRODED marked the beginning of Government efforts to revise appropriations to take account of both quantitative and qualitative characteristics of regions [18].

---

[17] Jimenez, Emmanual, Vicente Paqueo, and Ma. Lourdes de Vera. 1989. Does Local Financing Make Public Primary Schools More Efficient? The Philippine Case. PPR Working Paper No. 69. Washington D.C.: World Bank.

[18] Ibid.

New policies designed to improve internal efficiency

Although the universal provision of elementary education was realized in the early 1960s, continuing concern has been expressed over the quality of education provided. Beginning in the mid 1970s, the central Government began to introduce policies designed to improve the standard of education and increase student learning. The economic constraints of the early 1980s meant that the Government faced particular difficulties in continuing these programs. However, a series of integrated policies ensured that small, but significant improvements were made in participation rates and survival rates in spite of budgetary constraints.

The need to improve the quality of elementary education provided was made evident in a major study of achievement first conducted in 1976 -- the Survey of the Outcomes of Elementary Education (SOUTELE). This study revealed that, on average, the nation's sixth grade students achieved less than 50 percent mastery on all subjects. The lowest scores were recorded for mathematics and english.[19] The Household and School Matching Surveys Project reported similar findings in 1982/83.

The Textbook Improvement Project was among the first programs introduced in the effort to increase school learning. The first phase of this project (1978-81) was co-financed with the World Bank and aimed at improving the student/textbook ratio, particularly in the science and math subjects. The specific objective of the project was to reduce the student/textbook ratio from 8:1 to 2:1 through the distribution of free text books to public schools. The attainment of this objective was facilitated by the establishment of a Textbook Board (established to manage all phases of the manufacturing and distribution of books) and Curriculum Development Centers (CEC's) which worked in conjunction with the University of the Philippine's Institute for Science and Math Education Development (ISMED). The latter Institute assumed responsibility for the development of the science and math texts. By 1983 the student to book ratio was reduced to 1.4:1 for elementary science and 1.6:1 for elementary math. In the second phase of the project (1982-85) further emphasis was placed on curriculum improvements and on the introduction of improved teaching methods. Short-term inservice training in the use of the new materials was provided to teachers to encourage the adoption

[19] World Bank. December 1988. The Philippines Education Sector Study. Washington D.C.: World Bank.

of the new texts [20].

The Educational Development Project Implementation Task Force (EDPITAF) represented another thrust in the effort to improve school quality. In an effort to support the Textbook Project and the New Elementary School Curriculum (introduced in 1983/84) EDPITAF distributed science equipment to selected schools in poorer regions. The distribution effort received support from the United Nations Development Program (UNDP) and UNICEF. The EDPITAF effort does not, however, appear to have been entirely successful having been unable to meet the elementary schools' requirements for science equipment [21].

Efforts have also been made to improve internal efficiency by addressing the need for improved school management. For example, the Philippines has attempted to improve the administrative training provided to school principles and administrative staff. Although there are continuing difficulties about what the curriculum and training should cover, efforts are being made[22].

The effectiveness of these measures in bringing about an improvement in student learning cannot be fully assessed. Many of the programs have only recently been introduced and evaluations have not been undertaken. The best measure of progress in student learning available is obtained from a replication of the SOUTELE, conducted in 1987. This showed that, although mastery levels were still low, slight improvements in achievement are being realized.[23]

---

[20] Guzman, Alfonso de. 1989. "The Philippines: A Textbook Case" in: Joseph P. Farrell and Stephen P. Heyneman. Textbooks in the Developing World. Economic and Educational Choices. Economic Development Institute. Washington D.C.: World Bank.

[21] Lockheed, Marlaine E., Josefina Fonacier, and Leonard J. Bianchi. May 1989. Effective Primary Level Science Teaching in the Philippines. PPR Working Paper. Washington D.C.: World Bank.

[22] Lockheed, Marlaine and Adriaan Verspoor. 1989. Improving the Quality of Primary Education in Developing Countries. Washington D.C. World Bank.

[23] World Bank. December, 1988. The Philippines Education Sector Study. Washington D.C.: World Bank.

STATUS OF THE REFORMS

In spite of the efforts made to improve the operation of the elementary education sector and to provide higher quality education, numerous problems must still be overcome. Social inequalities in the provision of elementary education, for instance, persist and are particularly marked between urban and rural schools -- test scores in urban elementary schools are 15 to 20 percent higher than those of rural schools. Facilities serving poorer regions and students are of poorer quality and the ratio of textbooks per pupil continues to be lower in urban than rural areas in spite of the Textbook project. As a result of these and other factors, low income students tend to have higher dropout rates and score lower on achievement tests [24].

The continuing high wastage rate is also a matter of continuing concern. One out of every three students starting the first grade fail to complete the elementary cycle and student learning continues to be low for those completing the cycle. The fact that students attending private elementary schools score 1.3 to 1.6 times higher than their public school counterparts indicates the need for further improvements.

Recent Government decisions to increase public support of secondary education and to provide increases in teacher salaries of 50 percent have aroused new concerns as to the ability of the Government to continue with policies to increase student learning at the elementary level within existing budget constraints. It is unlikely that the share of education in total Government spending can be increased much beyond its present 21 percent level. Unless additional sources of funds are tapped and internal efficiency is improved further, the quality of public elementary education could be compromised by these policies.

LESSONS OF THIS EXPERIENCE FOR OTHER COUNTRIES

- The Government's strategy of encouraging the private provision of secondary and higher education has meant that public funds have been released for investment in elementary education. As a result, universal elementary education has been achieved at an early date. Enrollment rates are substantially

---

[24] World Bank. October, 1988. The Philippines. The Challenge of Poverty. Washington D.C: World Bank.

higher than those reported by other countries at the same level of economic development. The private sector has been effective in meeting the social demand for secondary education. Few restrictions have been placed on the private sector, although a ceiling on tuition fees is set by Government.

- Efforts to increase the contributions of local communities to local schools has been an effective strategy. The quality of schools (measured in terms of student/textbook ratios and quality of physical structure) is reportedly higher in communities which are less dependent upon public funding. In addition, higher student learning is reported among these schools.

- The Philippine effort to improve the internal efficiency of schools is based upon an integrated set of policies which tackle a variety of shortcomings in the educational system -- the shortage of textbooks; the lack of inservice teacher and principal training; the unavailability of science equipment; and the particularly low student achievement levels in science and math. Although it is not possible to fully evaluate the outcomes of these policies owing to their relatively recent introduction, it is important to note that test scores (SOUTELE) indicate that improvements in student learning are already being recorded.

SRI LANKA CASE STUDY

OVERVIEW OF THE EDUCATION SECTOR

Sri Lanka's achievements in general education, until the late 1970s, were outstanding when compared to other nations at similar levels of GNP per capita. In less than 40 years of political independence, Sri Lanka developed a basic education system which provided access to over 75 percent of the school age population (5-19 years). Gross enrollment ratios have been, and continue to be, high at primary and secondary schools levels and are reasonable at the tertiary level. Gross enrollment ratios in the mid-1980s were 103 percent at primary level, 63 percent at secondary level and 4.6 percent at the tertiary level. The average grade attainment level was 9.5.[25] Sri Lanka's broad education provision has enabled it to attain an unusually high level of adult literacy (87 percent) given its low per capita GNP of US$ 375 in 1984.

These achievements have been the consequence of policies supporting the belief that "free" education should be provided to all citizens at each educational level. Rigorous efforts were made to implement this policy through the early 1970s. Schooling facilities were expanded at a rapid rate and consequently almost 10,000 schools are scattered throughout the Island. Primary school children almost never have to travel more than 4 kms to the nearest school. It is significant that public expenditures have favored the primary level -- the percentage of total public spending on the three respective levels of education in 1985 was 43, 41, and 16 percent for primary, secondary and tertiary levels respectively.[26] Structural equity within the educational system is thus good.

Up to the mid-1970s, efforts were also made to increase the quality of education provided in schools; free textbooks were provided to children in the first ten grades and

---

[25] Tan, Jee-Peng, and Alain Mingat. September 1989. Educational Development in Asia: A Comparative Study Focussing on Cost and Financing Issues. Unpublished Draft. Washington D.C.: World Bank.

[26] Tan, Jee-Peng, and Alain Mingat. September, 1989. Educational Development in Asia: A Comparative Study Focussing on Cost and Financing Issues. Unpublished Draft. Washington D.C. World Bank.

teachers were generally well-trained and well-paid. The student/teacher ratio was also kept consistently low in primary schools (Grades KG - 5), averaging 31.3:1. The ratio at secondary school has been even more favorable.

KEY SECTORAL PROBLEMS

Inequalities of Access by Sex and Income Group. Despite efforts to provide free and universal education, both regional and sex disparities have persisted. Disparities in attendance between sex groups are not severe (females accounted for 48.7 percent of primary enrollments in 1982), but increasing female enrollments continues to be a priority.[27] Disparities in the amount of schooling received by children from different income groups is a more immediate concern. It is reported that only 62 percent of children from households with monthly incomes of less than Rs. 100 attend school while the participation rate for children from families earning Rs. 1,000 or more is as high as 86 percent.[29] Studies show that poverty is one of the major factors accounting for early withdrawals and stayaways from school.

Inequality of Access by Ethnic Type. Inequalities in the provision of primary schooling have also historically been associated with the type of primary school attended. Four types of primary school exist--general public schools, pirivenas which provide general and religious instruction, private schools, and estate schools. Estate schools mainly serve children of the Indian Tamil plantation workers and are operated by the estates rather than the Government. The education provided in such schools has typically been of extremely low quality. The Government has, however, gradually taken over these schools and improved both facilities and the quality of education. Estate schools have been reduced from 725 in 1977 to 14 in 1988.[29] Nonetheless,

---

[27] Baker, Victoria, J. 1988. The Blackboard in the Jungle: Formal Education in Disadvantaged Rural Areas. A Sri Lankan Case. Eburon Publishers: Netherlands.

[28] World Bank. 1986. Sri Lanka. Education and Training Sector Memorandum. Washington D.C. World Bank.

[29] Baker, Victoria, J. 1988. The Blackboard in the Jungle: Formal Education in Disadvantaged Rural Areas. A Sri Lankan Case. Eburon Publishers: Netherlands.

the Indian Tamils, who account for 9.3 percent of the total population still have a school-going population of only 1.0 percent -- far behind all other groups.

High repetition and dropout rates. Sri Lanka's achievement in providing universal primary education has also been marred by continuing high repetition and dropout rates. 1982 data reports repetition rates as high as 14 percent in Grade 3, and 8 percent in Grade 5. This, in part, results from student testing practices which are used to determining student promotion to the next grade level. Testing begins in first grade and repetition thus begins at this level. This practice is both discouraging for children and exceedingly costly. Dropout ratios are not particularly high (5.6 percent at primary level) for a developing country, but continue to be an important problem, particularly since the dropout rate is substantially higher for students from poorer households.[30]

Unemployment of Graduates. The problems of the education sector at large are also evident in the growing rate of unemployment among school leavers and the concurrent lack of skilled and managerial personnel. Policy changes which affect internal and external efficiency, quality and the orientation of the system are therefore required.

ECONOMIC CONSTRAINTS AFFECTING THE EDUCATION SECTOR

The expansion of the education system and the provision of "free" education has drawn heavily upon Government resources -- 15 percent of public expenditures were allocated to this sector to 1973. In the mid 1970s, however, the Government reduced allocations to the education sector in order to respond to commitments in other sectors. Projects in the agricultural sector (the Mahaweli Irrigation scheme) and in other social sectors (the Million Houses Program) drew heavily upon public funds.

The reductions in public spending were undertaken at the same time that attempts were made to implement new policies designed to bring about the decentralization of education administration and funding in 1978. By 1983, public spending was reduced to 2.4 percent of GDP and about 6.8 percent of total public expenditures (in 1973, 15 percent of public

[30] World Bank. 1986. Sri Lanka. Education and Training Sector Memorandum. Washington D.C. World Bank.

expenditures were allocated to the education sector) [31]. The theory behind the decentralization movement was that parents and communities would finance an increasing part of the costs of education. School Development Societies (SDS) were established in each district to facilitate these efforts but operated more effectively in wealthier districts where management skills and capacities were greater.

Decentralization policies have not been successful. Indeed, the SDSs have exacerbated inequities between urban schools which serve a wealthier clientele and poorer rural schools [32]. The main factors leading to the failure of the decentralization effort have been the severe lack of qualified personnel in local Government units. The decentralization effort has thus floundered because of a lack of institutional capacity.

The changed investment priorities of the central Government and the failure of the decentralization efforts had a serious impact on the free education system. The sharply reduced spending resulted in a deterioration of physical facilities, an underpaid teaching staff with poor morale, the inadequate provision of equipment and learning materials, and a sharp reduction in the rate of expansion of educational facilities. The quality of education provided reflected these trends -- curriculum improvements were not undertaken and the curricula emphasized rote learning and attention to theory rather than practice.

The Government responded to these problems by reforming education policies, as outlined in a 1981 White Paper Report entitled: "Education Proposals for Reform". The 1984-88 Public Investment program was also designed to respond to the need for reform. Both the papers included statements regarding the need for increased funding in the education sector to prevent further deterioration of services.

POLICY RESPONSES TO SECTORAL PROBLEMS AND ECONOMIC CONSTRAINTS

The reform proposals contained in the 1981 White Paper Report attempted to address the major problems of the education system. However, these proposals have been only partially implemented. Support for the programs has not been

---

[31] World Bank. 1986. Sri Lanka. Education and Training Sector Memorandum. Washington D.C. World Bank.

[32] World Bank. 1986. Sri Lanka. Education and Training Sector Memorandum. Washington D.C. World Bank.

strong in all sectors of the Government, and consequently the Government has chosen to implement the reforms selectively and frequently on a pilot basis. Furthermore, expenditures on education, as a percentage of GNP, have not increased -- they amounted to 3.15 percent and 3.00 percent of GNP in 1986 and 1987, respectively. Although allocations were scheduled to increase to 3.5 percent of GNP in 1989, no information is available as to whether this has actually occurred.[33]

The Government has attempted to facilitate the decentralization efforts introduced in 1978. These efforts have focused mainly on the introduction of a school Cluster System. Under this system, schools have been grouped together in districts and co-operate in administrative and teaching activities. In most cluster systems, smaller schools have been linked with a larger core school, which exercises authority over the smaller schools. Cluster schools share resources between them and collaborate in staff development and curriculum improvement programs as well as fund raising and extracurricular activities. Smaller schools also benefit in that teachers may be rotated between schools on both a long- and short-term basis.[34] This system has led to some marginal improvements, but has actually increased disparities between the wealthier and poorer regions. The Cluster system appears to work well only in schools with well trained administrative personnel, and these are invariably found in the wealthier areas.

Although funding to the sector has remained low, efforts have been made to improve the internal efficiency of the system. In 1983, for instance, the Government introduced measures to improve general management. The roles of school principals and supervisory staff were redefined, management training programs were introduced for school administrators, and efforts were made to improve personnel management capacities. The overall results of these efforts have been mixed, but the importance of management has been emphasized.[35]

---

[33] Division of Planning and Research. January 1989. National Report - Sri Lanka. Paper prepared for the United Nations Educational Scientific and Cultural Organization International Conference on Education. Geneva.

[34] Lockheed, Marlaine and Adriaan Verspoor. 1989. Improving the Quality of Primary Education in Developing Countries. Unpublished Draft. Washington D.C.: World Bank.

[35] World Bank. 1986. Sri Lanka. Education and Training Sector Memorandum. Washington D.C. World Bank.

The Ministry of Education has also taken steps to improve the quality of the teaching cadre which showed substantial decline during the period of economic austerity. New three-year pre-service teacher training programs have been introduced although the success of these programs have been negatively affected by the lack of management capacity within the Ministry of Education and the unrealistic implementation schedule set for the introduction of the programs. A Distance Teaching Programme has also been designed to improve the quality of teachers. This program provides in-service teacher training programs and has been well-received. However, training programs have been held during school time, meaning that it takes teachers out of the classroom and interrupts the continuity of the school curriculum.

Low teacher salaries are considered to be a major factor leading to the poor quality of recruits. Salaries increases were introduced in 1978, but are still thought to be inadequate. A new and promising policy is the proposed increase in salaries for teachers located in poorer regions. This should attract more competent teachers to areas most in need.

The Curriculum Development Center (CDC) is responsible, under the auspices of the Ministry of Education, for curriculum planning, implementation and evaluation. However, this unit also suffers from a shortage of well-trained staff and funding. Staffing was greatly reduced in 1977 when funding to the education sector was reduced. Consequently it is unable to undertake the full range of its responsibilities. Curriculum development activities are satisfactory but implementation strategies are poor -- teachers at the local level who have to implement the new curricula receive very little support and no training is given in the use of new materials.[36]

STATUS OF THE REFORMS

Sri Lanka's education sector continues to suffer the effects of long-term underfinancing. The significant achievements made up to the early 1970s have been compromised. Most notably, the quality of education provided is poor and the internal efficiency of the system is very low.

---

[36] World Bank. 1986. Sri Lanka. Education and Training Sector Memorandum. Washington D.C. World Bank.

While the Government has made efforts to redress these problems, the reform efforts have generally not been fully or effectively implemented. Continuing low levels of funding have impeded the reform efforts as well. Thus, primary performance test scores continue to show sub-standard achievement levels, dropout and repetition rates continue to be high, particularly among children from poorer households, and teaching staff continue to be underqualified and poorly trained.

LESSONS OF THIS EXPERIENCE FOR OTHER COUNTRIES

- Decentralization can be an effective strategy in raising additional funding for education systems, as has been evidenced in the Philippines. The difficulties experienced in Sri Lanka, however, underline the importance of introducing these measures slowly while ensuring continuing support -- both administrative and financial -- from the central Government. Local Government units must have the institutional capacity and ability to undertake the budgeting and planning activities imposed by decentralization efforts. Where this capacity does not exist, it is necessary for central agencies to provide personnel support and training.

- Reform efforts have not been successfully implemented in Sri Lanka in many instances. Frequently this has resulted from a lack of central Government commitment to the project and from the imposition of unrealistic time-frames (e.g., the Curriculum Development Center and the teacher training schemes).

COLOMBIA CASE STUDY

OVERVIEW OF THE EDUCATION SECTOR

The formal education system in Columbia includes five grades of primary school, six grades of secondary school and two to six grades of higher education. Basic education comprises nine years -- the five grades of primary school and the first four grades of secondary school. Education is free and compulsory in Colombia; however, private provision is significant especially at the post-primary level. It accounts for 15 percent of primary enrollment, 40 percent of secondary and 60 percent of higher education.

Gross enrollment rates for primary education have grown from 77 percent in 1960 to about 120 percent in 1983 (although the net enrollment rate is nearer 73 percent). For secondary education, the gross enrollment rate has grown from 17 percent in 1965 to 49 percent in 1983. (UNICEF, State of the World's Children and finance sector work). It is notable that there is very little discrepancy between enrollment of boys and girls; for example, the gross enrollment rate for boys for the years 1984-86 was 112 percent compared to 115 percent for girls. This equality of access by gender to education continues into secondary education where the enrollment rate for boys is 55 percent, and for girls is 56 percent.

KEY SECTORAL PROBLEMS

As indicated above, Columbia has made great strides in the provision of primary education. However, the disparity of access to and quality of education between urban and rural areas has continued to pose a problem, as indicated by these early 1980 statistics[37]:

a) in net terms, the enrollment rate in urban areas was about 90 percent versus approximately 65 percent in rural areas.

b) nearly half of rural schools did not offer all five primary grades.

c) for all five primary grades, promotion rates were

---

[37] The World Bank, "Staff Appraisal Report: Subsector Project for Rural Basic Education," July 6, 1982.

significantly higher in urban areas than in rural areas. (Repeaters accounted for 22% of first grade enrollments and 15% of second grade students in 1980 in the rural areas).

d) only about one out of five school-age children completed primary school, whereas in urban schools more than half in the age cohort finished the five-year cycle. The result was that it took 21 student-years of services to produce a single rural graduate of the five-year cycle. In financial terms, as of 1980, a single rural primary graduate cost society nearly US$1,700 (1980 dollars) in educational resources instead of the US$400 which would have been required in an efficient system.

This low internal efficiency was directly related to the quality of rural education. The curriculum did not take into account the needs of the rural student where (1) there was a lack of teachers, (2) existing teachers were undertrained, (3) there were very few textbooks, and (4) an underinvestment in education capital expenditures resulted in poor physical facilities.

In addition, Colombian education experts determined that the primary school curriculum alienated rural students from their environment. It was traditional, passive, and based on the principle of rote learning. Further, academic schedules were too rigid and did not take into account the need for rural students to help with agricultural and domestic chores. Finally, the curriculum was designed for one teacher for each grade; in contrast to this, however, was the fact that more than two-thirds of rural primary schools were multi-grade schools and had only one or two teachers. In addition, two-thirds of rural school children had no textbooks.

While there was an excess of teachers for urban schools, hundreds of rural primary schools were closed for lack of teachers. In rural schools with teachers, half lacked minimally acceptable academic and pedagogic qualifications, in comparison to one quarter of urban primary teachers. Rural primary schools also lacked basic physical facilities. About 80% lacked minimum basic furniture and most also lacked essential equipment, paper and writing materials as well as sanitary facilities.

ECONOMIC CONSTRAINTS AFFECTING THE EDUCATION SECTOR

Economic performance has been adequate but not outstanding during the last 25 years, with per capita GNP growing at a yearly average of 3.2 percent. Public recurrent expenditures have increased substantially in all educational levels, so that now they represent one-third of all central government recurrent expenditure. Since the main objectives of the education sector are to increase coverage of basic education and to achieve acceptable quality levels throughout the system, there is ample room for improving the performance of the sector by improving the efficiency of resource use.

POLICY RESPONSES TO SECTORAL PROBLEMS AND ECONOMIC CONSTRAINTS

The Unitary School Program

In an early attempt to address the problems of access to and quality of rural education, authorities introduced the Unitary School approach, which would later serve as a point of departure for the Escuela Nueva. This was conceived of by UNESCO in the early 1960s and was intended to provide a complete primary school education in regions with low population density. It was characterized by:

1. The presence of a single teacher, whose function was to facilitate and guide learning, as opposed to presenting content.

2. An "automatic promotion system."

3. A system of active learning that was intended to enable children to advance at their own pace.

4. Materials designed to permit the teacher to work with several groups at once. The key element was flash cards, which also allowed children to leave to participate in agricultural chores, and re-enter the learning program.

Colombian educational authorities experimented with this approach under UNESCO advice throughout the sixties and early seventies. They introduced several curricular innovations designed to facilitate each child's individual learning process, that could be implemented with less teacher input. This included "activity corners" or centers and flash cards. In the first experimental program in Pamplona teachers prepared these cards or "guides" themselves. These consisted of: Self-instruction cards, Mechanization cards, Knowledge extension cards, and recuperation activity cards. These cards were intended to make it possible for teachers to offer

the five grades of primary education within one rural school.

Based on the Pamplona experience, in 1967 the government decreed that the Unitary School methodology should be implemented in all schools with one teacher, especially in the sparsely populated zones. In response, several institutions began working to adapt the methodology, including the Antioquia Department of Education and the University of Antioquia and the Regional Center in Risaralda. What resulted was a panorama of, "different approaches and different views on the problem of the rural school. These differences prevented a consensus or a nationwide strategy. Each responded to a particular aspect of the problem" (Arboleda).

The central problem of the Unitary School Program that made it impossible to generalize throughout rural areas in Colombia was that it only dealt with the learning process at the child's level and failed to address the fundamental concurrent changes that would need to take place in the national curriculum, teacher training institutions, and administrative organs. Nor did it address the new role of teachers and the community. In particular, these problems included:

1. Teacher training.

Teachers were given little prior training in the new approach, and almost no support and follow-up and so did not fully understand the Unitary Program. Training was instituted only at the central level (in fact, just a few individuals were responsible); nothing was available at the local levels. In addition, there were no strategies or materials to replicate training. Further, for those who did receive training, it was disseminated in an informative rather than demonstrative manner and there were no means to ensure they were correctly applying it in the classroom. Because teachers were poorly prepared, the new learning approach was largely undermined. For example, since they were responsible for preparing and paying for the cards, many would only prepare the self-instruction cards, and eliminated the other three category "complementary" cards, in order to save time and money.

2. Curriculum.

Due to the poor preparation of teachers, the Unitary School Program did not engender the inductive process and

analytical reasoning intended. Rather, in many cases students merely copied the contents of the cards (this was not too dissimilar to the traditional approach of copying from the blackboard). Further, the curriculum content did not relate to the community as originally planned; in fact, the cards and material were mostly derived from texts of urban origin. Since teachers were not adequately informed of their role as a link between the school and the community, they did not develop activities to include the local communities. Finally, though the learning theory advocated individualized instruction, the authorities had not prepared the appropriate materials to facilitate this.

3. Management and Administration.

First, educational authorities were never able to institute a system of automatic promotion that would exempt students from repeating grades. Second and most important, departmental supervisors and administrative agents were not involved in the innovation -- they did not participate in teacher training, as noted above, nor did they have any input into the curriculum. (This was due in large part to the fact that there was no system of educational administration below the departmental level. As the World Bank SAR for Subsector Project for Rural Basic Education commented, "The absence of a local administrative framework means that assistance for and control over schools and teachers outside the departmental capital city, and especially in remote areas, are minimal.") This created great problems because teachers could not introduce the curricular innovations without the authorization of the supervisor, and the supervisors knew little about the innovation.

The Introduction of Escuela Nueva

Escuela Nueva grew out of the Unitary School Program, and was designed to address its shortcomings. In particular, it included:

> A training and follow-up component for teachers and administrative agents involving active training workshops as opposed to informative courses. These courses include philosophy and content of the program, school organization, the production and use of simple teaching aids, and student evaluation. Teachers are given an initial week of training and then begin to introduce Escuela Nueva into the classroom. Over the year they attend two further workshops, timed to coincide with the

teacher's needs for assistance with the new materials and evaluation systems. The design of materials and training of teachers and children are integrated in such a way that the administrative agents (trainers) work with the teachers who, in turn, work with the children, applying the same active process they learned in the training workshops. This makes training easily replicable. The courses have also been made part of the national teaching program. Finally, the authorities attacked the teacher shortage problem by tying increased salary incentives for rural teachers to their completion of the in-service training program and successful introduction of Escuela Nueva methods in their schools.

A curriculum component designed to combine a national curriculum with possibilities for regional and local adaptations made by teachers during the training courses. Class organization is flexible; popularly elected student leaders (members of the School Government) assist the teacher in facilitating instruction and enable one teacher to effectively handle up to five grades simultaneously. The classroom is designed around "resource corners" and simple classroom furniture calculated to allow groups of students or individuals to work on particular assignments appropriate to their grade and stage of progress, with only occasional direct help from the teacher. These individualized learning programs are composed of different series of levels, among which the student can choose the one most appropriate to his interest and abilities, and include learning through projects, music, dance and drama. The curriculum is rural oriented and deals with real life situations in integrated learning units, and is readily adaptable to the circumstances of a particular community. In content it favors simple and sequential themes. In approach it promotes practical problem-solving experiences rather than rote learning. There is a built-in continuous assessment and evaluation procedure which requires a demonstrated mastery before the student can progress to the next level; it is based on the ability to apply knowledge within the community, and not merely on testing of knowledge itself. A flexible promotion system was instituted. This type of curriculum recognizes the differing aptitudes of students, and accepts as a given the inevitability of student absences during periods of agricultural activities (enabling children to resume their studies without repeating or feeling compelled to abandon their schooling). A small library provides additional resource material for a project approach to learning.

A community component including family and community participation through activities described in school materials. Teachers are taught to acquire a thorough knowledge of the community, and to use local materials in their class curriculum. Escuela Nueva makes the school a part of the larger community by: helping students to regain their cultural identity through folksongs, myths, and the like, and through newsletters that capture their history; serving as a base for health, sanitation and nutrition information; and encouraging community management of the school, including community construction of schools. The School Government forges a school-community link by exemplifying civic and democratic attitudes.

An administrative component promoting decentralized strategies for implementing the innovation; essentially, central level authorities are responsible for the design of the program, and support in implementing it, whereas training and implementation is carried out at the regional and local level. Departmental supervisors are trained in program content and pedagogy and make frequent and regular school visits. Departments have increased the number of supervisors to meet these requirements.

In sum, the Escuela Nueva program seeks to:

(a) provide the full five-year primary course in all rural areas through multi-grade classrooms;

(b) improve the internal efficiency of rural education; the theory is that the improved relevance of the curriculum, its flexibility, and the new evaluation standards as well as complete five-years schools in rural areas will bring about decreasing dropout rates and make repetition unnecessary; and

(c) improve student learning achievement through improving educational inputs such as the curriculum, teachers, educational materials, supervision services, and physical infrastructure.

The lower cost of this approach is seen in the savings of two major inputs: teachers and materials. Each rural school no longer requires five teachers for five separate classrooms. In addition, teaching materials in total are less costly because each school is provided with several sets of materials that include the entire primary curriculum;

because several students work with a single set of guides for a period of four to five years, these need to be replaced less frequently. Finally, additional resource mobilization takes place through community input to education. In some cases, this takes the form of school construction; in others, community members might prepare materials for the students (clay,etc.). Community members might also be asked to provide remedial support for students.

Implementation of Escuela Nueva

There are three distinct phases in the implementation of the Escuela Nueva program.

The first phase took place between 1976 and 1980 and was mainly devoted to developing the new approach. This phase focused on the design of the learning guides and of the teacher training courses, the composition of the basic school library, the printing of the learning guides and teacher training. It was largely supported by the United States Agency for International Development. After these initial steps had been effected, 600 schools were selected in which to introduce the innovation (which made up 2% of all rural schools and 1.5% of all primary schools in the country)

The second phase covered the years between 1983 and 1988. During this period, Escuela Nueva was introduced to another 3,500 schools, or 11.6% of Colombia's rural schools, this time with World Bank assistance. Problems began to emerge that can be divided into two categories -- operation and policy. Those in the former category included a need to establish accurate figures on the number of teachers and the number of pupils; training of personnel to handle bids for acquisition of the learning guides and books for the school libraries; and establishing logistics for distributing the learning guides and the school libraries.

As the innovation was advanced, it met with some opposition. Teachers and supervisors felt that it was a Government ploy to reduce the hiring of teachers in the future. A small information campaign helped to convince the unions that the Ministry would assign one teacher for every 35 pupils, under all schools (both single- and multi-graded). Teachers also expressed concerns about how their in-service training would be evaluated in terms of credits towards salary increases and promotions. The government had not set out concrete figures; after the authorities did assess the training for Escuela Nueva, they ascribed more credits to

this training, making it easier for teachers taking the training to gain seniority.

The third phase is meant to extend Escuela Nueva to all rural schools in Colombia. This phase was initiated in 1988, again with World Bank assistance.

Evaluation of Escuela Nueva

Several studies have been performed in order to assess the impact of the Escuela Nueva program. The results are summarized below:

(1) An analysis of creativity was conducted by Jose Rodriguez in 1982 that found little difference in the level of creativity between students in Escuela Nueva with one or two teachers, and those in rural schools with one teacher for each grade.

(2) An analysis of self-esteem conducted by Carlos Rojas found that children in the Escuela Nueva had a much higher level of self-esteem than those enrolled in the traditional rural schools. Of special importance is the fact that girls and boys had the same level of self-esteem, which could indicate another positive aspect brought about by this type of participative methodology.

(3) An evaluation comparing 168 schools employing the Escuela Nueva program with 60 traditional rural primary schools (five grades with one teacher per classrooms) was made by the Instituto SER in 1987 for the Ministry of Education. This evaluation looked at variables of creativity, self-esteem, self-evaluation of civic and social development, and achievement levels in mathematics and Spanish. The study concluded that self-esteem levels were similar for the two types of schools, though in terms of civic-social behavior Escuela Nueva scored slightly higher. Of greater importance, however, the Escuela Nueva students scored consistently higher in academic performance (third graders were tested for mathematic performance and fifth graders for mathematics and Spanish).

The evaluation also noted that teachers generally gave a positive assessment of Escuela Nueva (80%). Other positive aspects reported in the assessment include the increased participation of the teacher in community activities, and the increased participation of parents in school activities and children's homework assignments. In matters of internal efficiency, little difference was noted between the two

programs in dropout rates. In terms of repetition rates, since each student in the Escuela Nueva advances at his own pace, it is difficult to measure. However, a proxy comparator was employed -- the students' subjective assessment of falling behind their classmates. By this measure, 47% of Escuela Nueva and 57% of traditional school students reported that they had repeated one or more years of schooling.

STATUS OF THE REFORM

The government has committed itself to raising the overall quality of primary education and improving access to enable all children reaching school age to enroll. This commitment is reflected in a six-year investment program presented in 1987, emphasizing expanding coverage in rural and marginal urban areas. Because Escuela Nueva has been so successful, the government has chosen this approach to expand access in all rural schools. In addition, the government is exploring ways to further mobilize resources at local levels (some departments in 1970 contributed as much as 50% or 60% to recurrent expenditure on education; by 1983 this had dropped to a high of 4%) and in the private sector.

LESSONS OF THIS EXPERIENCE FOR OTHER COUNTRIES

- Many middle-income countries, like Colombia, have managed to provide relatively high quality primary education to the majority of the children living in urban and suburban areas, and now wish to extend quality schooling to children in less populated areas. Because of low population densities in the relevant age-groups, and the difficulty in attracting skilled teachers and administrators to rural areas, the governments of these countries are encountering special problems. Further, the costs of providing high quality schooling in rural areas are high because of the low internal efficiency (high dropout and repetition rates). An added problem at this time is that many of these countries are experiencing severe economic difficulties and their education systems are facing real declines in public resources going to education. Therefore, any solution to the problem of providing high quality schooling to rural children must be achieved with little in the way of additional financial resources for the sector.

  Colombia's "Escuela Nueva" is an exceptional

innovation that goes a long way towards overcoming all of these problems. It is successful because it is a low cost program that delivers a high quality education to increasing numbers of children with a curriculum that is particularly relevant to those living in rural areas. The program is cost-effective to implement because it significantly increases the student/teacher ratio in rural areas. Quality is improved through the use of specially developed pedagogical materials that are designed to be used in a multi-grade environment, along with well structured teacher training and training followup activities. Further, because of the relevance of curriculum to rural experiences, the program manages to increase community involvement and support for local education.

- One of the reasons the "Escuela Nueva" is so much more successful than earlier programs that attempted to provide multi-grade schooling to rural children in Colombia is that it simultaneously addresses a whole host of institutitional factors that might affect the successful implementation of a new innovation. In particular, the program provides flexible teaching materials that are based upon a new curriculum; teacher training, monitoring, and follow-up exercises in the use of the new materials; novel classroom instruction techniques (such as using popularly elected student leaders to assist the teacher); decentralized implementation strategies, and local promotional activities designed to integrate the school into the community.

REFERENCES

Aubret, Paul. Rapport d'Evaluation des Classes a Double Flux, SODETEG: Paris, June 1989.

de Arboleda, Vicky Colbert. Universalization of Primary Education in Colombia: The New School Programme. Paper presented at "Effective Schools for Students from Impoverished or Economically Disadvantaged Backgrounds," September 27-28, 1989.

Baker, Victoria, J. The Blackboard in the Jungle: Formal Education in Disadvantaged Rural Areas. A Sri Lankan Case. Eburon Publishers: Netherlands, 1988.

Chiappi, Clemencia. Escuelas Nuevas: The New School as an Alternative for Educational Planners in Less Developed Countries. Paper presented at "Effective Schools for Students from Impoverished or Economically Disadvantaged Backgrounds, September 27-28, 1989.

Guzman, Alfonso de. "The Philippines: A Textbook Case" in: Joseph P. Farrell and Stephen P. Heyneman. Textbooks in the Developing World. Economic and Educational Choices. Economic Development Institute. Washington D.C.: World Bank, 1989.

Instituto SER. Evaluacion Programa Escuela Nueva, prepared for the Ministry of Education, Colombia, 1987.

International Monetary Fund. Government Finance Statistics Yearbook, various years.

Jimenez, Emmanual, Vicente Paqueo, and Ma. Lourdes de Vera. 1989. Does Local Financing Make Public Primary Schools More Efficient? The Philippine Case. PPR Working Paper No. 69. Washington D.C.: World Bank.

Lockheed, Marlaine, Josefina Fonacier, and Leonard J. Bianchi. Effective Primary Level Science Teaching in the Philippines. PPR Working Paper. Washington D.C.: World Bank, May 1989.

Lockheed, Marlaine and Adriaan Verspoor. 1989. Improving the Quality of Primary Education in Developing Countries, Washington D.C. World Bank.

Mondon, Pierre and Thelot, Claude. Le Success de L'Ecole au Senegal, report prepared for the Ministry of Education, Senegal, March 1989.

Republic of Ghana. Ghana's Country Paper on Development of Education, 1986-88, Presentation at the 41st Session of the International Conference of Education, January, 1989.

Republique du Senegal. L'Ecole Nouvelle, July, 1986.

Republique du Senegal. Ministere de L'Education Nationale, Direction des Etudes, Financement Public des Depenses Courantes d'Education de 1983/84 a 1987/1988, March 1989.

Republic of Ghana. Quarterly Digest of Statistics, December, 1988.

Republic of Senegal. Cost and Financing of Education, February 18, 1986.

Republica de Colombia. Analisis del Sector Educativo con enfasis en sus aspectos administrativos y financieros, 1988.

Tan, Alicia J. January, 1989. A National Report on Development in Philippine Education since 1986. Prepared for the Forty-first Session, International Conference on Education, UNESCO: Geneva.

Tan, Jee-Peng, and Alain Mingat. Educational Development in Asia: A Comparative Study Focussing on Cost and Financing Issues. Unpublished Draft. Washington D.C.: World Bank, September 1989.

Unesco. Colombia: Aspectos de la Calidad de la Ensenanza Basica Primaria, November 1986.

Unesco. Division of Planning and Research. National Report - Sri Lanka. Paper prepared for the United Nations Educational Scientific and Cultural Organization International Conference on Education. Geneva, January 1989.

United Nations. Statistical Yearbook, various years.

The World Bank. Ghana: Structural Adjustment for Growth, January 23, 1989.

The World Bank. Ghana: Progress on the Education Sector Adjustment Program, July 8, 1988.

The World Bank. Ghana: President's Report for a proposed credit of SDR 28.5 million, November 13, 1986.

The World Bank. Ghana Education Sector Adjustment Program Aide-Memoire, First Tranche Review, March 25, 1988.

The World Bank. December, 1988. The Philippines Education Sector Study.

The World Bank. October, 1988. The Philippines. The Challenge of Poverty. Washington D.C: World Bank.

The World Bank. "Senegal Staff Appraisal Report: Primary Education Development Project," September 9, 1986.

The World Bank. Senegal Primary Education Development Project, various unpublished back-to-office and supervision reports, 1988.

The World Bank. Senegal: An Economy under Adjustment, Main Report, February 13, 1987.

The World Bank. Senegal: Sub-Sector Memorandum for Primary Education, April 12, 1983.

The World Bank. Sri Lanka. Education and Training Sector Memorandum. Washington D.C. World Bank, 1986.

The World Bank. Sri Lanka. Education and Training Sector Memorandum. Washington D.C. World Bank, 1986.

The World Bank. Colombia, Country Economic Memorandum: Productivity Growth and Sustained Economic Development, August 25, 1989.

The World Bank. Colombia, Education Sector Finance and Efficiency: Sector Memorandum, April 24, 1987.

The World Bank. Staff Appraisal Report: Colombia Second Subsector Project for Primary Education, November 2, 1988.

The World Bank. "Colombia: Staff Appraisal Report, Subsector Project for Rural Basic Education," July 6, 1982.

The World Bank. Education in Sub-Saharan Africa: Policies for Adjustment, Revitalization, and Expansion, January 1988.

The World Bank. Basic Education for Self-Employment and Rural Development: A Sub-Sector Study, March 22, 1989.

Zuckerman, Elaine. Adjustment Programs and Social Welfare. World Bank Discussion Papers No. 44. Washington D.C.: World Bank, 1989.

APPENDIX TABLES.

GHANA

Table A: Basic Indicators

	1975	1980	1982	1985	1986	1987
GDP (1985 Cedis, '000,000) /a	312.839	346.509	315.815	343.048	360.884	378.207
Population ('000,000) /b	9.87	11.54	11.47	12.72	13.05	13.39
GDP per capita (1985 Cedis)	31.696	30.027	27.534	26.969	27.654	28.245
GDP per capita US$ (1985) /c	528.25	500.53	458.38	449.56	460.38	470.84

/a In millions of Cidis (constant 1985)
/b mid-year estimates
/c CPI: 100 Cedis in 1980 = 909 Cedis in 1985.
59.55 Cedis (1985) = 1 US$ (1985).

GDP, population before 1982: IMF, "International Finance Statistics Yearbook," 1988.
GDP, population after 1982: IMF, "International Financial Statistics," November 1989.
Exchange rate and CPI: IMF, "Government Financial Statistics Yearbook," 1988.

Table B.1: Recurrent Expenditures by Functional Category (1980 US$ millions)

	1975	1980	1985	1986
Total expenditure (current Cedis)	997	6329	38461	60833
Education as percent of total	25.5	12.6	25.5	26.7
Health as percent of total	8.7	6.6	7.9	8.9
Defense as percent of total	8.6	5.2	6.3	6.2
Police/Order as percent of total	5.4	3.9	6.7	6.3
Debt Service as percent of total	10.0	16.1	13.2	18.6
Other as percent of total	41.7	48.5	39.9	33.2
Education as percent of GDP	6.0	3.0	3.7	3.3
Total interest payments on debt	9.970	101.897	507.685	1,131.494
-- as percent of total expenditure	10.0	16.1	13.2	18.6

Sources:
The World Bank, "Ghana: Strutural Adjustment for Growth," January 1987.
IMF, "International Financial Statistics," 1988, and November 1989.
IMF, "Government Finance Statistics Yearbook," 1988.

Table B.2: Capital Expenditures by Functional Category (1980 US$ millions)

	1975	1980	1985	1986	1987
Total expenditure	441	1390	7303	3826	18552
Education as percent of total	15.2	5.5	5.5	6.7	9.1
Health as percent of total	7.0	5.4	4.4	4.5	11.6
Defense as percent of total	1.4	11.2	3.2	9.2	0.0
Police/Order as percent of total	2.5	1.7	1.0	2.1	0.0
Other as percent of total	71.9	76.1	95.7	78.4	79.2

Sources:
The World Bank, "Ghana: Strutural Adjustment for Growth," January 1987.
IMF, "International Financial Statistics," 1988, November 1989.
IMF, "Government Finance Statistics Yearbook," 1988.

BEST COPY AVAILABLE

Table C: Educational Expenditures by Type (1980 US$ millions)

	1975	1984	1986
Total educational expenditure ('000) /a	241	3,844	16,705
Administration/administrative staff	8.9	4.2	6.3
Teaching staff salaries	57.1	53.6	73.6
Teaching materials	-	21.6	-
Scholarships	3.5	-	-
Welfare services	-	7.7	-
Subsidies not distributed	11.7	10.4	1.6
Other expenditure as percent of total	18.8	2.4	18.5
Total percent	100.0	100.0	100.0

a/ Thousands of current Cedis
Source: Unesco, "Statistical Yearbook," 1989.

BEST COPY AVAILABLE

Table D: Student enrollments by level of education (in thousands)

	1960	1970	1980	1983	1984	1985	1986	1987
Primary	503	967	1417	1453	1464	1491	1469	1479
Secondary (total)	191	552	668	754	757	802	753	804
Middle School	-	-	-	-	579	617	562	418
Junior Secondary	-	-	-	-	17	18	20	207
Upper Secondary	-	-	-	-	161	167	171	179
General Secondary School	-	331	-	724	125	133	137	146
Technical/Vocational	-	94	-	15	20	19	18	17
Teacher Training	-	127	-	15	16	15	16	16
Tertiary	1.5	5.4	15.5	12.9	9.8	-	-	-

Notes:

1. This table is a compilation of data from The World Bank, "Education in Sub-Saharan Africa: A World Bank Policy Study," January, 1988. Data for the years 1960-1983 are taken from the former; data from 1984-1988 are taken from the latter source.

2. Discrepancies between middle and secondary enrollments between 1983 and 1984/85 attributed to grouping of grades by different sources (until 1983, middle and junior grouped with secondary);

3. Secondary enrollments are divided into General, Technical/Vocational and Teacher Training where possible;

4. Teritiary level enrollment statistics taken from The World Bank, "President's Report," November 13, 1986

Table E: Student/teacher ratios by level of education

	1970	1975	1980	1983	1985	1986	1987
Primary	30	31	29	28	23.2	23	23
Secondary /a	17	22	22	21	18.5	17.2	17.2
Teacher Training	-	-	-	-	16.1	16.5	16.7
Technical/Vocational	-	-	-	-	20	15.8	14.9
Tertiary	6	-	-	-	-	-	-

a/ For the years 1970-1983, general secodary subsumes teacher training and technical/vocational.

Notes:

1. Data for the years 1970-1983 taken from The World Bank, "Education in Sub-Saharan Africa: A World Bank Policy Study," January, 1988 Data for years

2. Data for the years 1984-1988 taken from The Republic of Ghana, "Ghana's Country Paper on Development of Education, 1986-88"

BEST COPY AVAILABLE

Table G: School age population and projections (in millions)

	Actual	Projected	
	1984	1990	2000
Primary (7-11 years)	2.1	2.6	3.3
Secondary	1.9	2.4	3.3
Primary/secondary as percent of total	33.1	-	28.7

Source: The World Bank, "Education in Sub-Saharan Africa: Policies for Adjustment, Revitalization, and Expansion, January 1988."

Table H: Enrollment ratios by level of education

	1960	1970	1980	1983	1984	1985
Primary total	46	64	73	79	67	63
Females	-	-	-	68	59	-
Males	-	-	-	87	75	-
Secondary total	19	42	37	38	36	35
Tertiary	0.2	0.8	1.5	1.8	1.5	1.5

SENEGAL

Table A: Basic Indicators

	1960	1970	1975	1980	1985	1986	1987
GDP (1984 FCFA, billions) /a	577.5	757.4	851.4	896.6	1,019.5	1,078.0	1,211.0
Population ('000,000) /b	3.498	4.391	4.977	5.703	6.44	6.61	6.79
GDP per capita (1984 CFCA)	165,094	172,489	171,067	157,216	158,311	163,082	178,352
GDP per capita US$ (1985) /c	436.76	456.32	452.56	415.91	418.81	431.43	471.83

/a The World Bank: "Republic of Senegal: Costs and Financing of Education," Feb. 1986.
/b mid-year estimates
/c From IMF, "International Financial Statistics, November 1989: CPI: 88.5 CFCA in 1984 = 100 CFCA in 1985; and 378.05 CFCA (1985) = 1 US$ (1985).

GDP, population before 1982: IMF, "International Finance Statistics Yearbook," 1988.
GDP, population after 1982: IMF, "International Financial Statistics," November 1989.
Exchange rate and CPI: IMF, "Government Financial Statistics Yearbook," 1988.

Table B.1: Recurrent Expenditures by Functional Category

	1963	1968	1975	1980	1984
Education	13.4	20.0	18.9	23.0	17.6
Health	8.8	9.8	5.9	4.7	4.7
Defence	10.7	12.7	10.7	16.8	10.3
Justice & Police	1.4	10.2	0.0	0.0	7.5
Debt Service		6.5	-	-	-
(Public)	2.7				
(Pension)	0.4				
Other	62.6	40.8	64.4	55.4	59.9
Total Current Expenditure	34.7	35.0	75.6	147.2	250.0

	1965/66	1970/71	1983/84	1984/85	1985/86	1986/87	1987/88
Education Expenditures:							
as a percent of national budget	15.7	18.2	23.1	23.1	23.1	22.8	22
as a percent of GDP	-	3.2	3.9	3.5	3.8	3.5	3.3
Total interest payments on debt -- as percent of GDP	-	-	13.0	8.1	7.5	-	-

Sources:
The World Bank, "Senegal, An Economy Under Adjustment," February 1987.
IMF, "International Financial Statistics," 1988, and November 1989.
IMF, "Government Finance Statistics Yearbook," 1988.
Government of Senegal, "Le Financement Public des Depenses Courantes du System d'Education Entre 1983/1984 et 1987/1988," 1989.
The World Bank, "Senegal, CEM" June 8, 1970, Annex II, p.2.
Government of Senegal, "Compte Definitif des Recettes et des Depense du Budget du Senegal," 1970/71.
The World Bank, "Senegal Education Project Staff Appraisal Report," 1986.

BEST COPY AVAILABLE

Table B.2: Capital Expenditures by Functional Category

	1961-1964	1968-1969	1981-1985	1985-1987	1987-1990
Social Services					
Housing	15.5	14.6	3.0	2.9	1.1
Education	9.3	3.6	3.4	3.9	6.0
Health	2.3	2.8	3.7	6.3	2.2

Note: The IMF "Government Finance Statistics Yearbook does not report capital expenditures by function.

Data for 1981-1989 from The World Bank, "Senegal, A Review of the Public Investment Program," February 1987.

Table C: Educational Expenditures by Type (1980 US$ millions)

	1975	1980	1981
Current educational expenditure ('000) /a	15,950	27,485	21,695
Administration/administrative staff	-	4.1	-
Teaching staff salaries	-	60.1	-
Total Salaries	67.8	64.2	85.1
Teaching materials	9.7	5.4	6.9
Scholarships	22.5	19.1	5.3
Welfare services	-	-	2.5

Source for 1975-1981: Unesco, "Statistical Yearbook," 1989.

Table C.2: Educational Expenditures by Level (in constant 1987 CFCA)

	1983		1984		1985		1986		1987	
	FCFA (1987) (millions)	(%)	FCFA (1987) (millions)	(%)	FCFA (1987) (millions)	(%)	FCFA (1987) (millions)	(%)	FCFA (1987) (millions	(%)
Pre-School	319	(0.7)	320	(0.7)	448	(0.9)	499	(1.1)	548	(1.1)
Primary	19.804	(41.6)	23.452	(48.9)	23.168	(49.1)	21.777	(46.0)	21.695	(45.0)
Secondary										
General	11.322	(23.8)	9.870	(20.6)	8.940	(19.0)	10.450	(22.1)	10.927	(22.7)
Technical	1.777	(3.7)	1.509	(3.1)	1.727	(3.7)	1.568	(3.3)	1.473	(3.1)
Tertiary	7.467	(15.7)	7.066	(14.7)	6.996	(14.8)	7.282	(15.4)	7.546	15.7)
Teacher Training	1.687	(3.4)	1.276	(2.7)	1.185	(2.5)	989	(2.1)	1.145	(2.4)
Private Education	992	(2.1)	898	(1.9)	837	(1.8)	841	(1.8)	806	(1.7)
Grand Total	47.546	(100.0)	47.995	(100.0)	47.155	(100.0)	47.334	(100.0)	48.037	(100.0)

Table D: Student enrollments by level of education (in thousands)

	1960	1965	1972	1980	1984	1985	1986	1987
Primary	129	219	283	420	567	583	611	643
Secondary (total)								
General	11.7	25.4	59.4	82.4	111.9	-	-	-
Other (Voc/tech. teacher training)	1.3	2.1	4.2	8.7	9.0	-	-	-
Tertiary	1.4	2.1	5.0	12.7	11.9	-	-	-

Sources: Compilation of figures from
(1) Staff Appraisal Report, "Primary Education Development Project," September 9, 1986
(2) The World Bank, "Education in Sub-Saharan Africa," January, 1988
(3) The World Bank, "Republic of Senegal: Cost and Financing of Education," February 18, 1986
(4) The World Bank, Supervision Report, July 8, 1988

BEST COPY AVAILABLE

Table E: Student/teacher ratios by level of education

	1975	1980	1982	1983	1984	1985
Primary	41.0	46.0	44.0	41.0	46.0	46.0

Source:
Unesco. "Statistical Yearbook." 1989.

Table F: Unit recurrent costs by education level
(Current US$)

	1979	1986
Primary	87	117

Source: The World Bank. "Subsector Memorandum on Primary Education." April. 1983; and The World Bank. "Senegal Primary Education Development Project." September 1986.

Table H: Enrollment ratios by level of education

	1960	1970	1980	1983	1985	1986	1987
Primary	27.0	41.0	46.0	52.3	53.8	54.6	55.7
Secondary	3.0	10.0	11.0	12.0	-	-	-
Tertiary	0.5	1.5	2.0	2.2	-	-	-

Source:
(1) The World Bank. "Education in Sub-Saharan Africa." January. 1988
(2) Senegal Education Project Supervision Report. July 8. 1988.

PHILIPPINES

Table A: Basic Indicators

	1970	1975	1980	1985	1986	1987 /b
GNP (billions 1980 pesos) /a	143.0	195.2	264.5	251.2	256.2	270.7
Population /b	36.89	42.07	48.32	54.67	56.01	57.36
GDP per Capita (1980 pesos)	3.881	4,640	5,474	4,595	4,574	4,719
GDP per capita US$ (1980)	516.7	617.9	728.9	611.8	609.1	628.4

/a In billions of Pesos (constant 1980)
/b In millions of persons
/c US$ 1.00 (1980) = Pesos 7.51 (1980)

Sources:
GDP: 1988 IMF Government Finance Statistics Yearbook
Population: 1988 Unesco Statistical Yearbook
Exchange rate: 1988 IMF Government Finance Statistics Yearbook

Table B.1: Total Expenditures by Functional Category (1980 US$ millions)

	1975	1980	1985	1986
Total expenditure	-	5027.69	4203.19	5722.63
Education as percent of total	13.8	11.1	16.1	13.5
Health as percent of total	-	3.9	4.7	1.2
Defense as percent of total	-	17.3	10.9	8.5
Police/Order as percent of total	-	13.5	9.4	6.9
Other as percent of total	-	54.1	58.9	69.9

Source: 1988 IMF Government Finance Statistics Yearbook.

Total interest payments on debt a/		115.7	579.3	969.9
-- as percent of total expenditure		2.3	13.7	16.9

a/ In millions of US$
Source: 1977 & 1988 IMF Government Finance Statistics Yearbook.

BEST COPY AVAILABLE

Table C: Educational Expenditures by Type

	1975	1980	1985	1986
Total educational expenditure a/	237.802	536.380	369.118	504.113
Salary as percent of total education	87.1	-	61.7	59.1
Materials as percent of total	-	0.3	0.9	0.6

a/ In CBS 1980 ('000's)
Source: 1988 UNESCO Statistical Yearbook

Table D: Gross student enrollments by level of education

	1970	1975	1980	1985	1986	1987
Primary	6,968,978	7,683,000	8,033,642	8,925,959	9,204,168	9,501,618
Secondary	1,719,386	2,340,000	2,928,525	3,214,159	3,420,921	-
Tertiary	651,514	769,749	1,276,016	1,973,182	-	-
Vocational	-	776,000	-	-	-	-

Sources: Philippine Education Sector Study. 1988. World Bank.
UNESCO 1977 & 1988 Statistical Yearbook

Table E: Student/teacher ratios by level of education

	1970	1975	1980	1985	1986	1987	1988
Primary	29	29	30	31	31	32	32
Secondary	33	-	34	32	33	-	-
Tertiary	22	24	27	-	-	-	-

Sources: 1977 & 1988 UNESCO Statistical Yearbook

Table F: Recurrent costs by level of education (thousands of 1980 US$)

	1970	1975	1980	1985	1986
Primary ('000)	207,465	296,966	329,337	235,866	311,542
Unit costs	30	39	41	26	34
Secondary ('000)	97,058	29,697	84,212	37,281	64,022
Unit costs	56	13	29	12	19
Tertiary ('000)	16,457	20,045	118,540	83,051	102,039
Unit costs	25	26	93	42	-

Sources: 1977 & 1988 UNESCO Statistical Yearbook

Table G: School age population and projections (in millions)

	Actual				Projected		
	1970	1975	1980	1985	1990	1995	2000
Primary (6-12 years) (thousands)	6,969	7,640	8,290	8,794	10,128	11,687	13,237

Source: 1989 World Bank, Philippines Sector Study
1977 UNESCO Statistical Yearbook

Table H: Enrollment ratios by level of education

	1970	1975	1980	1985	1986
Primary total	6,968,978	7,597,279	8,033,642	8,925,959	9,204,168
Females (%)	-	-	49	49	49
Males (%)	-	-	51	51	51

Sources: 1977 & 1988 UNESCO Statistical Yearbook

BEST COPY AVAILABLE

SRI LANKA

Table A: Basic Indicators

	1970	1975	1980	1985	1986	1987
Gross Domestic Product (Rupees 1980) /a	41.963	50.959	66.527	92.049	94.262	95.916
Population b/	12.52	13.5	14.75	15.84	16.12	16.36
GDP per Capita (1980 Rupees)	3.352	3.774	4.510	5.811	5.847	5.863
GDP per capita US$ (1980) /c	202.76	228.32	272.86	351.55	353.75	354.68

/a In millions of Rupees (constant 1980)
/b In millions of persons
/c US$ 1.00 (1980) = Rupees 16.53 (1980)
Sources:
GDP: 1988 IMF Government Finance Statistics Yearbook
Population: 1988 Unesco Statistical Yearbook
Exchange rate: 1988 IMF Government Finance Statistics Yearbook

Table B.1: Recurrent Expenditures by Functional Category (1980 US$ millions)

	1975	1980	1985	1986	1987
Total expenditure	-	995.52	1119.47	1079.18	1166.84
Education as percent of total	15.9	8.4	10.7	11.1	10.2
Health as percent of total	-	4.4	5.4	5.4	6.1
Defense as percent of total	-	-	-	-	-
Police/Order as percent of total	-	-	-	3.1	3.6
Other as percent of total	-	87.2	83.9	83.5	80.1
Total interest payments on debt a/	16.5	33.4	113.2		
-- as percent of total expenditure	-	3.3	10.1		

a/ In millions of US$
Sources: 1977 & 1988 IMF Government Finanace Statistical Yearbook

Table B.2: Capital Expenditures by Functional Category (1980 US$ millions)

	1980	1985	1986	1987
Total expenditure	669.02	738.35	738.23	672.95
Education as percent of total	2.3	4.2	5.3	3.4
Health as percent of total	5.4	1.5	1.7	4.2
Defense as percent of total	-	-	-	-
Police/Order as percent of total	1.6	1.6	3.2	-

Source: 1988 IMF Government Finance Statistical Yearbook

Table C: Educational Expenditures by Type (1980 US$ millions)

	1975	1980
Total educational expenditure	58.168	84.541
Salary as percent of total education	50.91	80.00
Materials as percent of total	1.14	0.90

Source: 1988 UNESCO Statistical Yearbook

Table D: Gross student enrollments by level of education (in millions)

	1970	1975	1980	1985	1986
Primary	1.671.420	1.367.860	2.081.391	2.242.645	2.284.499
Secondary	941.322	2.340.000	-	3.323.000	3.395.000
Tertiary	15.525	15.426	42.694	65.796	59.377
Vocational	-	776.000	-	1.504.000	-

Source: 1988 UNESCO Statistical Yearbook
1977 UNESCO Statistical Yearbook

BEST COPY AVAILABLE

Table E: Student/teacher ratios by level of education

	1970	1975	1980	1985	1986	1987	1988
Primary	-	30	-	32	32	32	32
Secondary	-	-	-	32	-	-	-
Tertiary	8	8	9	10	-	-	-

Sources: 1977 & 1988 UNESCO Statistical Yearbook

Table F: Recurrent costs by level of education (1980 US$)

	1970	1975	1980	1985	1986
Primary	31.679	52.181	-	-	-
Unit costs	53	26	-	-	-
Secondary	13.056	-	-	-	-
Unit costs	72	-	-	-	
Tertiary	3.639	4.314	8.300	-	9.755
	-	-	-	-	-

Sources: 1977 & 1988 UNESCO Statistical Yearbook

Table G: School age population and projections (in millions)

	Actual				Projected		
	1970	1975	1980	1985	1990	1995	2000
Primary (6-12 years)	1.671.428	1.385.201	-	-	-	-	-

Sources: 1988 Philippines Education Sector Study, World Bank
1977 & 1988 UNESCO Statistical Yearbook

Table H: Enrollment ratios by level of education

	1970	1975	1980	1985	1986
Primary total	1.671.428	1.367.860	2.081.201	2.242.645	230.499
Females (%)	47	47	48	48	48
Males (%)	53	53	52	52	52

Sources: 1977 & 1988 UNESCO Statistical Yearbook

COLOMBIA

Table A: Basic Indicators

	1970	1975	1980	1985	1986	1987
Gross Domestic Product (Col$ 1980) /a	923.6	1,216.7	1,579.1	1,764.7	1,854.7	1,954.0
Population /b	20.53	23.64	25.89	28.62	29.19	29.73
GDP per Capita (1980 pesos)	44,988	51,468	60,993	61,660	63,539	65,725
GDP per capita US$ (1980) /c	883.50	1010.76	1197.81	1210.91	1247.82	1290.75

/a In billions of Colombian pesos (constant 1980)
/b In millions of persons
/c US$ 1.00 (1980) = Col$ 59.92 (1980)
Sources:
GDP: The World Bank, "Colombia, Country Economic Memorandum: Productivity, Growth and Sustained Economic Development"
Population: 1988 Unesco Statistical Yearbook
Exchange rate: 1988 IMF Government Finance Statistics Yearbook

Table B: Central Government Expenditures by Functional Category (Billions of current Pesos)

	1982	1983	1984
Gross Domestic Product (current Pesos)	2,497.3	3,054.1	3,856.6
Total expenditure (central government)	399.7	465.3	584.5
Total recurrent expenditure	299.6	359.8	465.5
Total capital expenditure	100.1	105.5	119.0
Total educational expenditure (current Pesos)	76.2	94.0	114.7
--as a percent of total expenditure	19.06%	20.20%	19.62%
--as a percent of GDP	3.05%	3.08%	2.97%
recurrent educational expenditure	74.2	91.2	109.5
-- as a percent of total recurrent	24.77%	25.35%	23.52%
capital educational expenditure	2.0	2.8	5.2
-- as a percent of total capital	2.00%	2.65%	4.37%
Total health expenditure (current Pesos)	15.4	19.9	26.3
--as a percent of total expenditure	3.9%	4.3%	4.5%
--as a percent of GDP	0.6%	0.7%	0.7%
recurrent health expenditure	14.8	18.7	25.5
-- as a percent of total recurrent	4.9%	5.2%	5.5%
capital health expenditure	0.6	1.2	0.8
-- as a percent of total capital	0.6%	1.1%	0.7%
Total defense expenditure (current Pesos)	26.9	35.1	38.4
--as a percent of total expenditure	6.7%	7.5%	6.6%
recurrent defense expenditure	24.1	28.8	30.3
-- as a percent of total recurrent	8.0%	8.0%	6.5%
capital defense expenditure	2.8	6.3	8.1
-- as a percent of total capital	2.8%		
Total Debt	2,136.2	2,717.3	4,028.9
Domestic	39.9	104.0	288.7
Foreign	2,096.3	2,613.3	3,740.2

IMF. "Government Finance Yearbook," 1988.
IMF. "International Financial Statistics Yearbook," 1988. November 1989.

BEST COPY AVAILABLE

Table C: Educational Expenditures by Type (1980 US$ millions)

	1980	1983	1984
Total educational expenditure			
Salary as percent of total education	90.7	90.3	94.5
Materials as percent of total	-	8.2	0.1
Other expenditure as percent of total	9.3	1.5	4.8

Table D: Student enrollments by level of education (in thousands)

	1980	1983	1984	1985	1986
Primary	4,168	3,983	4,089	4,039	4,002
Secondary	1,313	1,424	1,432	1,469	1,617
Tertiary	272	356	379	391	418
Vocational (including teacher training)	420	393	457	465	519
Other					

UNESCO Statistical Yearbook, 1983 and 1988

Table E: Student/teacher ratios by level of education

	1970	1975	1980	1983	1986
Primary	41.7	32	30.2	32.3	29.4
Secondary	19	19.7	20.3	23.1	20.7
Tertiary	7.8	7.8	7.8	8.6	9.7
Vocational	-	-	18.9	17.7	15.6

Colombia MOE/World Bank Sector Study estimates, "Education Sector Finance and Efficiency," April 24, 1987

Table F: Unit recurrent costs by level of education (1980 US$)

	1970	1975	1980	1983
Primary	52.1	64.8	71.6	89.4
Secondary	210.7	152.5	198.5	192.2
Tertiary	1,132.8	936.8	1,561.4	1,115.5

Colombia MOE/World Bank Sector Study estimates. "Education Sector Finance and Efficiency," April 24, 1987

Table G: School age population and projections (in millions)

	Actual				Projected		
	1977	1980	1983	1986	1990	1995	2000
Primary (7-11 years)	3.08	3.14	3.28	3.35	-	-	-
Total population	24.23	25.89	27.5	29.19	-	-	-

Primary pop from Republica de Colombia, "Analisis del Sector Educativo." Bogota, 1988

Table H: Enrollment ratios by level of education

	1970	1975	1980	1985	1986
Primary total	108	118	128	117	114
Females	110	120	130	119	115
Males	107	116	127	116	112

Unesco "Statistical Yearbook," 1988.

BEST COPY AVAILABLE